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Wednesday, July 2nd, 1924.

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EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

stered at the G.P.O. as a Newspaper
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Edited by TOM NEWMAN.
PRICE TWOPENCE.

Twelve Months Post Free 12/8
Six Months " " 6/4
Three Months " " 3/3

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No. 129: 12 months record 287. Average weight eggs 2⅛ ozs. Sired by Tested Cock, son of "Pensford Peerless (4 year record 790). No. 129 won [illegible] and Sp. Bristol (1923).

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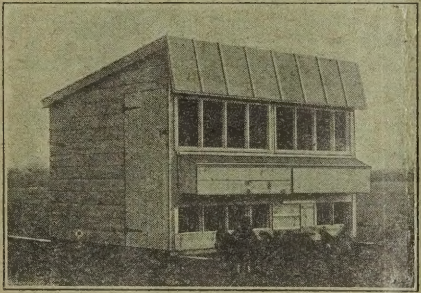

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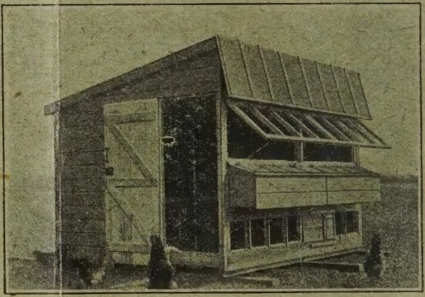

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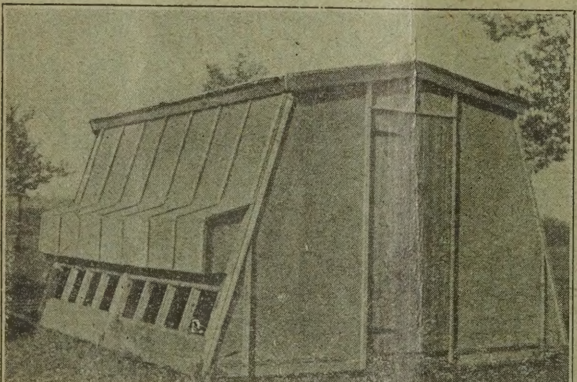

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, July 2nd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

THE HIGHLY-FECUND HEN.

In a letter recently received from Mr. Frank Snowden, he, after saying that he has had a remarkably successful rearing season, asks if we do not think that the highly-fecund hen is a much maligned individual. A few days ago the same question came from Miss Ransford, who also tells us that she has had a very successful season.

It must be admitted that a good deal of abuse has been hurled at the breeders of highly-fecund stock. Some of it has been justified; some of it, one might almost say, has been invited—as, for example, the reply of a well-known breeder to a complaint of only five chicks hatching from a three guinea sitting of eggs: "We are well satisfied when we get five or six chicks from a sitting of eggs from birds with such records as this." But it is only fair to say that this abuse has been too indiscriminate, and it might be added that the cause of it does not exist as it did a few years ago, when our knowledge of breeding was not so extensive as it is now. Speaking generally, we say without much fear of contradiction, that there has been a very distinct improvement in the health and vigour of the pedigree bred-to-lay stock in this country during the last five years.

There is sufficient evidence that we can breed healthy and vigorous stock from the highly fecund hen, and if we never lose sight of individual selection and our standard is high enough, there seems no reason why we cannot maintain high production consistent with healthy and vigorous reproduction.

On more than one occasion we have stated that the progeny of highly-fecund stock are lacking in vigour, have argued that this is the result of over-production, and have advised that the best hens from which to breed are those with records of 180 to 220. There has been plenty of evidence to support this view, and it has been endorsed by others; but we must admit that it is too general a statement, and, in the light of later knowledge, will bear some considerable modification.

It is perfectly true that selection for a specific factor is at the expense of other factors of perhaps equal importance, but no mischief will arise until it is pushed to extremes.

What do we actually mean by "over-production?" The term is a little vague. Presumably we mean the reproductive organs function too rapidly, and at the expense of bodily vigour. Prolapsus may be a case in point, the response of a very prolific pullet to a highly favourable environment which is too stimulating. It occurs in 90 per cent. of the cases during the flush season; during the unfavourable conditions of the winter month it rarely occurs. That is a case of over-production, but does it necessarily follow that every pullets which lays, say, between 220 and 300 eggs in the year is to come within the category of "over producers." We think not.

We have the fact that the earlier-hatched chicks grow the more rapidly and eventually attain a larger size than the later hatched, this in spite of the more favourable environment of the later hatched. This points to a period of over-production which affects the vigour of chicks hatched between the middle of April and the end of July, for we find that chicks hatched in August from the same breeding stock, will grow more rapidly than those hatched in May or June. The seasonal decline in the egg yield, apparently allows the bird to recover her bodily vigour, and to lay an egg from which a more vigorous chick can be hatched.

But what we have to demonstrate is that the progeny of a highly-fecund hen is not *necessarily* less rearable than those from a comparatively poor producer.

We must first clearly understand this, that continuous selection for high fecundity invariably results

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in earlier sexual maturity; that is to say, that each generation sees the pullet laying the first egg at an earlier age. Here we begin to see selection for a specific factor pushed to an extreme. To a point early maturity is economic, but beyond that it spells the ruin of a strain. It results in decreased body size, the eggs are smaller because the reproductive organs can only develop with the body, there is lack of vigour, and greater susceptibility to disease, because the food which should be used for the development of the body is partially diverted and turned into eggs, so that there is under nourishment, barely enough for maintenance, much less for development.

Here, then, lies the real danger, and it is probable that this has more to do with the highly-fecund hen being maligned than anything else. If breeders would but resist the temptation to breed from these precocious pullets, we should be nearer a solution of the small egg problem, and the greater one of successful rearing.

We take four Wyandotte hens, and label them A. B. C. D.

A. lays 180 eggs, first egg between 150 and 160 days old.

B. lays 180 eggs, first egg between 190 and 200 days old.

C. lays 260 eggs, first egg between 150 and 160 days old.

D. lays 260 eggs, first egg between 190 and 200 days old.

Now A. and C. are in the same category, they are both highly precocious individuals; they will be small birds laying small eggs, and they will be deficient in stamina, and they will transmit these traits to their progeny.

B. and D., on the contrary, provided they are bred from normal parents, will be of average size for their breed, will lay fair-sized eggs, and will possess average stamina.

If we mate a male from C. to A., we only accentuate the trouble, for early maturity is an inherited factor. If we mate a male from D. to A. no great improvement would result, for early maturity is dominant to late. That is how the Mendelians put it, but it appears to us that it is a mistake to deal with egg size as a separate factor; in reality it is not a question of the dominancy of egg size, but of early maturity being dominant to late. When high fecundity is linked with precocity we get the small egg, the small pullet, and the first step towards the unhatchable egg and the unrearable chick, and increased susceptibility to disease, and so the bad reputation of the highly-fecund hen.

From the breeder's point of view, then, A. and C. should be scrapped. They possess undesirable characters which are dominant, and no matter how they are mated a *very* high percentage of their progeny would follow their parents, even to the point of constitutional vigour, for that is inherited from the dam.

Undoubtedly the best mating would be B. and a male from D. From this we have every right to expect good layers, of good-sized eggs and progeny with plenty of stamina.

Breeders who trap-nest will recognise that the above records are not fictitious, and that you may often get two sisters behave as do A. and B. or C. and D. To us it appears that it is on the knowledge and observance of these facts that the reputation of the highly-fecund hen depends.

Modern Poultry Feeding.

By **TOM NEWMAN.**

LEG WEAKNESS AND THE DIET.

A reader takes me to task for venturing to assert, in a recent issue, that our friends over the herring pond were wrong in tackling the problem of leg weakness from the dietetic point of view in the first place, and then he quotes a letter in a contemporary, in which the writer states that after adding dried yeast to his formula he had no further cases of leg weakness.

The theory, of course, is that the dried yeast being rich in B vitamin was the preventive of leg weakness. On the face of it this theory would appear to be correct, but I am convinced it is wholly wrong; it is simply a coincidence. In my opinion the vitamin theory in regard to leg weakness is played out, it will not hold except in very exceptional cases, and these cases do not often arise in this country. I have examined hundreds of diets during the past two years, and tried to trace the connection between them and leg weakness, and have failed except in an odd case or two, where there has been a palpable deficiency of the lime salts. I have found that chicks getting cod liver oil in their mash were just as liable to leg weakness as those which were not; the same remark applies to yeast or yeast extracts. There have been several cases where the same mashes have been used, and in the one case there has been leg weakness and in the other not. This is somewhat in the nature of a confession on my part, as three years ago I was strongly of opinion that through the vitamins we should find the solution, but the evidence is too strong, and the vitamin theory is exploded.

If we admit that leg weakness is due to dietetic deficiencies, we shall have to admit that there are three forms of it:—(a) Rickets, due to a deficiency of the anti-rachitic vitamin "A"; (b) Polyneuritis, due to a deficiency of the anti-neuritic vitamin "B"; (c) Rickets, due to a deficiency of the lime salts. One can fully appreciate that there are rations in which one or other of the three may be deficient, but, as said before, these are very exceptional, and I have known very many cases of leg weakness where they have been amply provided. We must look elsewhere for the solution.

GREEN FOOD.

Col. Sullivan has written to ask "Whether, if green food were not available, or was purposely withheld, and the following formula added to the mash to supply the lime and potash salts, green food could be eliminated?

Carbonate of Lime	20 parts.
Bone Ash	00 parts.
Common Salt	20 parts.

3 ozs. to every 10 lbs. of mash.

"It is, of course, a formula often given by you. In view of the difficulty often experienced in getting green food in the winter time, the importance of the point will be appreciated."

When I gave the formula it was not intended to act in any way as a substitute for green food, and it would be necessary to test it before we could give a definite answer ; it might be necessary to add magnesium salts.

It will be remembered that, in the first series of the Wellingham experiments, the pullets which caused such a sensation at Harper-Adams on account of their remarkable development and health and vigour were reared in a coop on peat moss litter, and were not given either grit or green food of any kind for the first five months of their lives. Some experiments have taken place in America, in which the laying stock has been given a certain amount of magnesium salts in place of green food, and those who have made the experiment and observed the birds are unanimously of opinion that they are in every respect as healthy and productive as those which had the green food. I have some particulars of this experiment, but cannot find them for the moment, and, of course, it must not be regarded as in any way conclusive.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale.

EXPERIMENTAL DETAILS.

The experiments have generally been made with groups of 10 or 12 day-old chicks. At first Leghorns were used, but in the later experiments Light Sussex. Comparisons of chicks with pigeons, ducks and other birds have also been carried out.

The birds have been housed in the ordinary sort of commercial house with a small run attached. Day-old chicks have been started in a foster-mother. In the earlier experiments the houses were in the basement room of the building, and it was found that little difference could be noticed whether the houses were in the room or on the roof of the building.

For convenience the experiments may be referred to under the several numbered groups of chickens. The food consumption and growth of the birds, which were weighed weekly, are tabulated at the end of this paper, so that the whole series can be easily compared.

GROUP I. AND II.

The object of this experiment was to find out if chickens supplied with all the constituents of a complete diet could be reared in the close confinement of a laboratory.

Oatmeal was selected as cereal, mainly as it was thought from its method of manufacture, by knowing that it would not contain vitamins, but their entire absence was not expected. Extra protein was provided by milk. The salt supply was taken as sufficient. The quantity of vitamins to be added was chosen arbitrarily, as there was no knowledge of the requirements of chickens. The diet was as follows:—

Milk	120 g.
Cod liver oil	200.250 cc.
Marmite	5.0 cc.
Lemon juice	0.5 g.
Oatmeal	30.cc.

The milk was given separately in a cup ; most of it was spilt by the birds, and its consumption could not be recorded accurately.

The other ingredients were mixed together daily so that the birds received the vitamins every day, as was shown to be necessary by experiments with other animals.

As the birds grew, more food was required. This was given in the form of weighed amounts of oatmeal, or a mixture of oatmeal and biscuit meal. All food given was carefully weighed so as to check its consumption.

Twelve black and 12 White Leghorns were used. At the time of their arrival they were about three days old. Several were suffering from diarrhoea ; they were very weak and not expected to live. On the above diet all except one recovered, and no signs of illness were noticed up to the end of the first 28 days.

The 23 birds were then divided into two groups, selected so that the average weight of each group was nearly equal :—

Group I. had 6 black and 6 white, with average weight of 154 g.

Group II. had 6 black and 5 white, with average weight of 156 g.

The same diet was given, but the amount of vitamins was divided between the two groups. In order to have some difference between them group II. was given more C vitamin on account of the great stress laid by poultry-keepers upon green food, which might be for the supply of this vitamin.

The diets were :—

	Group I.	Group II.
Oatmeal	120 g.	120 g.
Cod liver oil	2.5cc.	2.5cc.
Marmite	0.25 g.	0.25 g.
Lemon juice	15cc.	20cc.

Extra food as required for both groups.— Oatmeal 30 g.; milk 10 cc.; later 20 cc.

Milk was not given for the first three days. It was then incorporated with the extra oatmeal in the proportions above stated.

Five days after the separation into two groups, the birds of group I. became less active and drooped. The cause was attributed to too small a quantity of C vitamin. The amounts of lemon juice were therefore raised to :—

Group I. 35 cc. Group II. 30 c.c.

No real difference was noticed even after raising respectively to 40 and 50 cc.

Attention was then given to the amount of B vitamin. The quantity given to each group in the daily food was raised to 0.5 g.

Some of the birds were now so ill that they had to be separated.

No trial had been made with extra cod liver oil, and it was now increased. Again there was no difference, and one bird died.

Distinct signs of leg weakness with drooping wings and ruffled feathers were now seen. These symptoms have been described in cases of polyneuritis gallinarum, or avian beri-beri, in its early stages. The cause of the illness was therefore due to insufficient B vitamin. As the birds had no appetite, extra marmite was given in the form of a 2 per cent. drink. It was greatly relished, and the birds got better in three days. Other birds which showed illness also got better after such a drink.

The birds were now in good health again. They were having the same diet with 40 or 50 cc. lemon juice. There was no object in continuing on the same diet, and a difference was made by giving group II. 10 cc. of cod liver oil. This group after a few days showed the drooping wings and ruffled feathers seen before with insufficient marmite. They improved with a drink of marmite.

Another period of extra cod liver oil was then tried with group II. In both cases 2.5 g. marmite was incorporated with the food for the day ; lemon juice was 30 cc. and cod liver oil 5 and 12.5 cc. The group with the higher oil again got ill; they recovered by doubling the marmite in their daily food.

The extra cod liver oil was thus not in itself the cause, but rather the extra fat in the diet which needed B vitamin for its assimilation.

(To be Continued.)

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted no later than Thursday.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

PEDIGREE.

I have received the following letter from Mr. G. R. Poole :—

"Dear Mr. Newman,—It is certainly surprising to find readers of 'Eggs' are more prone to discuss the value of grits, and leave absolutely alone Major Lethbridge's question : 'What constitutes a pedigree?' Though I am confident your leader of June 18th will draw somebody's pen other than mine. Previously whenever I have read your arguments I have followed you with ease, and can generally liken them to a hen house with a concrete floor, but to-day, pardon my saying so, the hen house has no floor at all.

Your definition of pedigree (a line of ancestors, etc., etc.,) is correct, and I cannot follow you when you say 'that doesn't help much.' I venture to say it is everything.

My late grandfather was able, after many years' work and much money spent, to establish a complete genealogical tree of his ancestors. In this tree is one Sir Reginald Poole, described as an honourable gentleman of independent means. He was, however, a highwayman, and was sentenced to death for murder, but escaped from the Tower of London to Holland, where all trace was lost of him. Am I then to take it that because an undesirable occurs amongst my ancestors, I have no pedigree? No, sir, it's a pedigree even if it does contain a sprinter or a B.W.D. carrier.

The same applies to your remarks re introducing exhibition blood. The 'cross' or 'introduction' would be part of the pedigree of the later offspring.

If you had said in your paragraph concerning 'cross-breeding' 'involves' the completion of GOOD pedigree,' I would have agreed, but without the word 'good' it is wrong.

I do agree with the first sentence of your last par, when you say all this does not answer the question as to what constitutes a pedigree. It does not, but it points out the difference between a good pedigree and a rotten one, and should serve a good purpose in pointing out to prospective buyers the absolute necessity of getting fuller particulars than are often given.

As an answer to the Major's query, I would suggest that nothing more concise than your dictionary definition could be given, but the scientific poultry breeder would require not only the plain pedigree but a history complete in detail of each individual in the tree."

May I try to put a floor to the house which Mr. Poole says I have failed to do.

First let me say that the definition of pedigree wa taken from the dictionary, and is not mine.

Then let me remind Mr. Poole that Major Lethbridge's question was "What *constitutes* a pedigree?" He could have obtained the dictionary definitio without bothering to write to "Eggs." I used it t show that it did not constitute a pedigree for our purpose. What he wished to know was what constitute a *pedigree of performance*. This, I think, was fairl obvious, and that is why the dictionary definition o the word pedigree does not help us. Let me put it t Mr. Poole in this way: Assuming I sell him som breeding hens, described as "pedigree," and he write and asks for their pedigree. I tell him they wer bred from Lady One-a-Day, who was bre from Lady Prolific, who came from Lady Fill basket, who was bred from Lady Layfast, who cam from Lady Shell-'em-out. That is a line of ancestors and, therefore, constitutes a pedigree, but would M

Poole be satisfied? He would immediately say "that is not a pedigree as *we poultry-keepers understand it.*" What Major Lethbridge wants to get at is what we do understand or mean by pedigree—the definition of the word, as we employ it, not as the dictionary defines it, that he could have found out in his library.

Let Mr. Poole understand that we are dealing with it in relation to a specific factor or character, and that we can within limits control it, while, fortunately or unfortunately, we have no control over our own. We have to define the word in relation to the manner in which we employ it.

Presumably the late Sir Reginald Poole left descendants, as Mr. Poole numbers him among his ancestors. but isn't he unconsciously drawing an analogy between Sir Reginald and a low fecund hen—I think so—and will it hold I think not. Because the low fecund hen would be the "undesirable," and it will not hold, because we should see to it that she left no descendants, therefore she will not appear in the pedigree. Sir Reginald, of course, is a different problem. Had he been wiped out on account of his little indiscretions, then it follows that we should not have had the pleasure of reading this letter of Mr. Poole's.

Now, as we are dealing with a pedigree of performance, Mr. Poole will perhaps understand why I say crossing pedigree exhibition and pedigree laying stock involves the destruction of pedigree. When we have bred for and established a specific character, and the pedigree is based primarily on that character, if by crossing we introduce other characters which dominate it, then the pedigree is destroyed. If, on the contrary, we crossed two lines of pedigree exhibition stock, both bred for the same object, then there would be no destruction of pedigree.

It seems to me that the pedigree, as we interpret it, should be based on an agreed standard. For example, birds to be typical of the breed, size to be an agreed average, number of eggs, size to be an agreed minimum. This, of course, could be amplified.

THE GOAT.

The Secretary of the "British Goat Society" has very kindly sent me a copy of the Year Book for 1924. Although my ignorance of the goat prevents my being able to fully appreciate its value, I thoroughly enjoyed reading it, and I am sure all those who are interested will feel well rewarded if they send to the Secretary, Mr. T. W. Palmer, 5, Fenchurch Street, E.C.3, for a copy. The price is only 1s. 6d., and threepence for postage. There are 24 excellent articles dealing with the goat from all aspects; for the cottager, kept intensively, as a milk producer; how to make butter and cheese; "establishing a milking strain," etc., and a most interesting article by Dr. Crew, "Genetics and the Goat Breeder." It would seem on reading these articles that the problems of the goat-keeper are in many respects very similar to those of the poultry-keeper.

EGGS BY WEIGHT.

I have a letter from a member who tells me that the Local Co-operative Egg Society has asked that the Society should pass a resolution that eggs should be sold by weight. This question has been raised several times during the past few years, and there is a good deal to be said in its favour.

I cannot see how it can be opposed to the views or interests of the producer, and it may be that it would be of real assistance to him.

Would any of our readers care to express their views on the matter?

A WONDERFUL LAYER.

From the Rev. A. L. Green-Wilkinson that he has a White Leghorn hen, hatched April 23rd, 1923, which has now laid a good-sized egg in the trap-nest on 103 consecutive days. She is still laying, and he asks me what the record for a string of eggs is.

I am afraid this information I am unable to give him. At the moment I can think of nothing to beat it.

Would any of our readers who have authentic records, particularly official ones, kindly send them along?

NATIONAL POULTRY PARLIAMENT.

Arrangements are very well forward for the National Poultry Parliament, which opens at Salisbury on Tuesday, July 15th. Professor Punnett has promised to speak at the meeting, which will be held in the City Hall, Salisbury, on the afternoon of that day, dealing with his breeding work at Cambridge University. The Agenda will be a very full one. Arrangements, however, have been made for two excursions in the district, which will add greatly to the interest. It is to be hoped to issue the programme early next week. In the meantime those affiliated societies which have not yet sent in the names of their representatives are requested to do so to The General Secretary, National Poultry Council, 20/21, Essex Street, London, W.C.2.

EDWARD BROWN, General Secretary.

DEATH OF MR. CHARLES HEBDITCH.

We regret to hear of the death of Mr. Charles Hebditch, which took place, after a short illness, on Saturday, 21st ult.

He was one of the Directors of the well-known firm of Messrs. Harry Hebditch, Limited, of Martock, Somerset.

Mr. Hebditch was highly esteemed in Martock and district. He took a very active interest in the public life of the town.

At the funeral the realisation of their loss by the townspeople was very marked, and it was one of the most impressive funerals that have taken place in the town within living memory.

THE HARPER-ADAMS' CONFERENCE.

Everyone looks forward to the Harper-Adams' Conference as one of the great events of the year. I often wonder whether Mr. P. Hedworth Foulkes ever realised what an important feature in the Poultry Year these Conferences would become when he initiated them in 1916. I think he must have done, and he should be proud of their success.

The programme of the eighth of these series, which will take place on August 6th and following days, is now to hand, and it promises to be as interesting as any of its predecessors.

There are to be discussions on "Dry and Wet Mash Feeding," "Marketing," "Poultry Diseases," and papers on "Pedigree Recording," "Breeding and Management of Ducks," on "Turkeys," on "Poultry-Keeping as a Career for Women," and "Side Lines on the Poultry Farm." While the Rev. A. Runnels-Moss is again going to delight us with a Dickens' Recital. This time, "Nicholas Nickleby."

All our readers will hear with very great pleasure that Dr. Crowther is making satisfactory progress towards recovery from his serious illness.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A Council Meeting will be held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, July 5th, 1924. Chair to be taken at 3.30 p.m.

AGENDA.

1. Minutes of last Council Meeting.
2. Letters and Communications.
3. Delegates to National Poultry Parliament.
4. Notice of motion by Westhoughton Society to award a Shield for teams of birds at the Federation Show.
5. Standard for Exhibition Utility Poultry.
6. Sub-Committee's Report:
   Laying Test, Educational, Finance, Show.
7. Any other business.

E. COLLIER, Organising Secretary.

The following Sub-Committees are requested to meet at the same place at 2 p.m.

Educational and Propaganda.—Messrs. J. R. Hull, W. Grove, T. Edmundson, J. Dewhurst, J. Whalley, W. Fletcher, and W. A. Hall.

Laying Test.—Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris, N. Holt, and H. Roscoe.

Finance.—Messrs. J. H. Hill, W. Hamnett, J. Graham, F. J. Butterworth, J. P. Willacy, and S. Marson.

THE POULTRY CLUB'S SUMMER MEETING.

LLANDUDNO, JUNE 18-19, 1924.

A pleasant holiday-like affair, blessed with perfect weather. The following were present with others:—Major Tom Potter, Mrs. Comyns Lewer, Mrs. Shephard (Wrexham), Mrs. Thomas (Wrexham), Mr. Alderson Smith (Rugby), Mr. Hose (Rugby), Mr. and Mrs. Chappell (Leicester), Mr. J. L. Harrington (Altrincham), Mr. A. H. Brain (West Bromwich), Mr. Maurice Brady (Birmingham), Captain Pierson-Webber (Stratford-on-Avon), Mr. and Mrs. G. H. Baker (Bridgnorth), Mr. Clem Watson, Captain T. M. Whittaker (Portmadoc), Captain Lomax Wood (Conway), Mr. W. H. Brady, Miss Halliday (Conway), Mr. Buckland (Conway), Mr. Chadwick (Conway), Mr. W. Woodward (Worcester), Mr. and Mrs. W. G. Samuel, Mr. and Mrs. Claude Samuel.

A number of the visitors arrived on the Tuesday evening, so that it was possible to arrange extra excursions on Wednesday morning. Some went to see Captain Pierson-Webber and Mr. Wood's farm at Conway. After luncheon there was a trip to view Mr. W. H. Brady's up-to-date plant. His gardens were good to see, and the drive back to headquarters a charming one. The dinner, as anticipated, was from a gastronomical point of view, worthy of the hotel "patronised by the Queen of Roumania," and, as a social function, was an outstanding success. The musical programme was good; the speeches had that intimate touch only possible in a moderate sized gathering, and everyone was delighted.

The conference proper on Thursday morning was not unduly long, as the programme of drives was too good to miss in such perfect weather.

Major Tom Potter suggested an ideal re-organisation of The Poultry Club. Captain Pierson-Webber discussed the thorny question of open judging. Mr. A. H. Brain tackled the roup trouble. Mr. W. H. Brady straightened out the matter of crooked breastbones. Messrs. Clem Watson, Alderson Smith, J. L. Harrington and others contributed to the discussions.

Certain fortunate visitors managed to stay till noon on Friday, and did not regret the extra hours. The whole affair was a genuine success. The North Wales Branch and the Secretary, Mr. W. G. Samuel, maintained the prestige of the Club, and as a jolly gathering free from formality the 1924 Summer meeting will long be remembered with pleasure.

MALPAS UTILITY POULTRY CLUB.

EIGHTH REPORT OF THE TWELVE MONTH'S LAYING TRIALS, FROM NOVEMBER 1st, 1923.

There is still a good deal of broodiness in the Heavy Section, some birds being broody twice in the month. High Bird No. 172 has had a rest, being broody.

There has been one casualty, cause of death, peritonitis, due to rupture of the oviduct.

Figures are total eggs for eighth month, and total to date respectively.

EGG PRODUCTION OF LEADING BIRDS.

White Leghorns.

No. 1: Mr. Warwick Rogers, 19. 164; No. 2: Mr. Warwick Rogers, 17, 144; No. 3: Mr. C. L. Crosse, 14, 144.

A.O.V. Light.

No. 1: Capt. and Mrs. Jarmay, 18, 147; No. 2: Mrs. W. Probin, 14, 140; No. 3: Capt. and Mrs. Jarmay, 16, 137.

White Wyandottes.

No. 1: Mr. W. H. Robinson, 22, 156; No. 2: Duke of Westminster, 12, 153; No. 3: Mr. T. H. Kemp, 15, 149.

A.O.V. Heavy.

No. 1: Mr. F. N. Paterson, 18, 195; No. 2: Mr. H. H. Lloyd 20, 170; No. 3: Mrs. Maples, 9, 152.

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for eighth period ending June 15th, 1924. Figures are total eggs for eighth month and total for test respecively.

SECTION A. (W.L.).

No. 1: Mr. C. F. Rivaz, 98, 447; No. 2: Mr. R. McKenzie, 94, 427; No. 3: Mr. S. Wilkinson, 91, 423; No. 4: Mr. R. H. Hunter, 95, 400; No. 5: Mr. D. W. Gunston (Pen B.), 69, 393. No. 6: Mr. D. F. Lawrence, 94, 383.

SECTION B

No. 1: Capt. Harper (R.I.R.), 77, 466; No. 2: Barford Poultry Farm (R.I.R.), 70, 451; No. 3: Mr. J. H. Thompson (W.W.), 71, 440; No. 4: Mr. S. Wilkinson (W.W.), 79, 403; No. 5, Mr. D. W. Gunston (W.W.), 60, 379; No. 6: Mrs. J. H. Drew (Buff Rock), 62, 364.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leaney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

A. W. (Willenhall). The sample of Sussex ground oats you send is a very good one, and I consider it excellent value for the money (16s. 6d., delivered).

J. R. N. (E. Lancs.). There is no method of feeding by which you can make a hen broody. Neither is there anything you can give it which will do so. You may sometimes induce a hen to sit by not removing the eggs from the nest every day. Very often when she has laid a dozen or so, and they are allowed to remain in the nest a hen will go broody, which she would not have done had they been taken every day, even a Leghorn. Of course, this is not infallible, but it often comes off. (2) The Buff Rock as a breed cannot be beaten for a cold and exposed situation. (3) The sample of maize germ meal is not sound. It appears to have been packed in a moist condition, and would account for the condition of your pullets.

R. H. C. (West Hartlepool). It is no good using "Revivers" and Chemical Foods. Nothing in the world will help you unless you make a drastic alteration in the conditions under which your birds are kept. Try and use a little commonsense, and you will have no reason for being "disheartened." In the first place you are badly overcrowding. The house will hold, at the most, 21 birds, and you have 38. Then it is badly ventilated, and your perches are too near the roof—bring them down to 2ft. 6in. from the floor. The small earth run is useless. It is in a filthy condition, and must be a hot-bed of disease. Dig it up, and thoroughly lime and plant it with thousand-headed kale. If you want to keep more fowls you must put up another house, and keep them all intensively. These small earth runs ought to be prohibited: You are feeding far too much fish meal. Reduce it by one-third, and replace one part of the barley meal with an equal quantity of thirds.

H. P. H. (Cheriton). If the birds in this particular house are constantly suffering from colds there must be something wrong with the ventilation of the house. I cannot possibly advise you, as you do not describe the house. I cannot enter into the relative of merits on dry *v.* wet mash feeding. We have been all through it in these columns. If you attend the Harper-Adams' Conference this year you will learn all about it, for it is to be debated upon there. Ask your friend if he attributes all the evils you mention to dry mash feeding, how it is the great majority of big commercial farmers feed only on dry mash from the shell, and why the system is so universally practised now.

E. W. (Hove). Select the cockerels which are the best developed for their age. Those which "boss" the rest are usually the best. Look for a bold, bright eye, short beak, neat head and well-developed comb, wattles and lobes. See that they have fine, flat bone, fine feather, and plenty of saddle hackle. (2) The ground oats are not "Sussex" ground, but they are good value for the money, and would answer the same purpose.

V. M. (Bootle). What you call "crop distortion" is merely due to the crop being full of light bulky food, which causes it to sag. It is not uncommon when the crop is distended. (2) You will find that most of the Black Leghorn chicks with dusky legs are pullets. The black pigment is stronger in the hens, and it is not easy to breed hens with dense black under-colour and bright yellow legs. There is no reason to think that your chicks are crossed with Minorcas because of the dusky legs, although many strains of Black Leghorns have Minorca blood in them.

Ita (Lago di Como). The presence of black feathers in the White Leghorn chicks is not an indication that they are not pure. There is really no such thing as a *pure* white fowl. They all carry red or black pigment to greater or less extent, and that this should occasionally show itself in the progeny is not to be wondered at. The appearance of this black feather is of common occurrence, but it is not so often found in the Leghorn as in the Wyandottes. Often in the Light Sussex we get birds with yellow legs. I have known this occur in strains which have been bred pure for many years. The Light Brahma was used in the manufacture of the Light Sussex, and this accounts for the occasional appearance of the yellow leg. I certainly should not say that because of the appearance of these black feathers on a few of the chicks that the strain was no longer pure. If there has been an out-cross, there would be other evidences of it. (2) With regard to the February hatched pullets, which are laying at 18½ weeks old, I quite appreciate the fact that in your very favourable climate development would be much more rapid. As to whether these pullets will be fit for the breeding pen or not you must use your own judgment. It is such a mistake to lay down a hard and fast rule. The question is what will these pullets reach ultimately? Usually there is not much increase in size of frame after they have commenced to lay. If later on you are satisfied with their body size and size of egg, then I should not hesitate to use them as breeders. The average weight of 3lbs. is very good. I do not like breeding from a Leghorn hen under 4lbs. weight.

E. T. E. (Wexford). It is most disappointing to have a strain of Wyandottes laying such small eggs as yours. The only way to effect an improvement would be to carefully select those pullets which have laid eggs, the higher percentage of which have not been less than 2ozs., and mate them to the son of a hen which laid eggs nearer 2¼ozs. in weight. You want to be rather careful in the selection of this male. Do not be led away with high records. If his dam laid only 200 eggs, and her winter record was good, and she did fairly well in August and September, he would be preferable to one with a record of 280 which laid smaller eggs, and I don't think you would find that the egg average production of the progeny would be much lower, as far as numbers go. I would not mate the hens which have consistently laid a small egg, however high their records may be, the effect of mating such birds even to the son of a large egg dam is most disappointing.

Chipper (Norton). I have examined the samples you sent me very carefully, and can find nothing to explain the condition of the chicks. They are all sound and of average quality. I do not think that changing to dry mash will make the least difference. It seems to me the whole trouble is to be traced to the parent stock. The chicks are lacking in constitutional vigour. I am sorry I cannot tell you what you would "like" me to tell you; I am compelled to tell you what you will not "like." You will never rear these chicks to healthy maturity. The weakness is inherent, and the wisest thing you can do is to get rid of the survivors at once. You may be encouraged because the post-mortem expert tells you there is no sign of disease—that is not the point. It does not follow because there is no sign of disease that there is not inherent weakness, and there will always be susceptibility to disease. Sorry I can't recommend any tonics, as I don't believe in doing so in such a case as this. Healthy chicks never want tonics, and unhealthy ones are not worth treating. (2) The Wyandotte records are excellent, and you should have a very fine breeding pen next season. No, don't attempt to throw them into a moult. Write me again in a couple of months' time, and tell me what they are doing, and I will advise you then. (3) I think if I were you I would stick to the two breeds, and not add another. Get a thorough grip of these two, and you will find that the better you know them the better you will do with them, and the better you will like them. No, thanks, I can't start a controversy in "Eggs" as to which is the best breed.

W. P. (Great Barrow). If a hatchery business is well conducted the prospects are quite good. You would, of course, have to buy your eggs at a favourable rate, and make arrangements with men in whom you have confidence. Travelling necessarily does affect the eggs, sometimes to a very considerable extent. It depends on the treatment the consignment may receive at the hands of the Railway Company. I do not think there is much money to be made on custom hatching.

H. M. (Inverness). You must send me more particulars, and then I may be able to advise you. It is very early for hens to start moulting. You say you feed on my formula, wheat and oats; but that is not my formula. Tell me exactly the proportions of the mash you are using, more particularly the malt culms and what percentage of fish meal. I am of opinion you are using too high a percentage of malt culms. If you will send me the exact formula I may be able to advise you.

H. S. M. (Horndean). It is certainly very wonderful that after such vicissitudes you should get 26 turkey chicks out of the 28 eggs, but what was the cause of the hens falling sick when they were sitting on the eggs, and you found the eggs cold each time? That is a matter which you do not explain, or even mention what the symptoms were. Certainly such a remarkable hatch upsets all our theories of incubation, or, rather, definitely helps to prove that failure with incubation more directly results from the egg itself than conditions in the incubator. With regard to your samples: The germ meal seems a nice sweet sample, but you should be careful with this, as of late we have had several complaints of losses of chicks and decrease in egg production, attributed to the use of germ meal, and some samples I have received seem to have a very sour smell, probably due to their being packed in a moist condition. The middlings are quite a good sample. The bran just fair—there is room for improvement. The meat and bone meal is a nice, sweet sample. The bran "B" is superior to the "A" sample, but at 11s. cwt. is very dear. The meat meal "B" contains a very high percentage of oil—I prefer "A." Middlings "B" at 11s. 6d. are very dear, and why they should cost 1s. 9d. per cwt. more than passes my comprehension. They are both about the same value. Sussex ground oats at 13s. are not "Sussex" ground, but are good value. "B" at 16s. appear to contain a fairly high percentage of barley. Maize meal "B" is a fair sample at 13s. 6d.

POST-MORTEMS.

J. H. (Great Harwood). The chicks were affected with the infectious Coccidiosis disease. Yes, the risk of following with successive hatches on the same ground is a parasitic one, either of the miscroscopic (as in this case) or others visible to naked eye. If birds entirely free from all parasites were carried on the land previously then the new lot need not suffer. All lands that become "sick" to horses and other stock, do so in this sense. Your friend who was successful, although following on with fresh hatches, would have been in the fortunate position above indicated. They are, therefore, both right. Try dilute catechu, giving forty grains to the gallon of drinking water.

B. R. (Horsham). The White Leghorn cock is suffering from gout and skin parasites, and is in the incipient stage of scaly leg (Acarus Mutans). The gout is quite sufficient to account for the stiffness, and, combined with the irritation of the parasites, for his lassitude. Of course, the abnormal demands that have been made on the sexual apparatus must also be taken into account for his general condition. We should advise that he and others showing gouty symptoms should be starved for twenty-four hours, and then given fifteen grains of Glauber salts in the morning mash for a week. It would also be better to discontinue the fish meal during the summer months. The ducks are losing their feathers owing to the invasion of the feather mite, which may be controlled by thoroughly dusting with a mixture of equal parts of lime, flowers of sulphur, and pyrethrum flowers. This should be done at night at roosting time, holding them up by the heels, and using a flour dredger. As regards the scaly leg, the legs should be well scrubbed with warm soapy water, dried, and then anointed with an ointment made of one part of flowers of sulphur mixed into six parts of benzoated lard.

I. K. M. (Hambledon). The consolidated pus in angle of the mouth might have been dug out, and the cavity treated with iodine, and it would have recovered. It is sometimes difficult for anyone but a surgeon to distinguish between diphtheritic growths and accidental ones in the mouth. You will be quite safe in always removing forcibly any such deposits or buried matter in the above manner.

E. H. Inflammation of the bowels was the trouble in this case, but it was caused by indigestion and want of suitable grit in great part. We make this diagnosis with confidence, because the swollen wheat not only filled the gullet, glandular stomach and gizzard, but passed out of the latter in large numbers in the bowel unacted upon.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

POST-MORTEMS.—IMPORTANT.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

ANTISEPTICS AND DISINFECTANTS

Such extraordinary claims are made by vendors of disinfectants and cure-alls for everything that flesh is heir to, that one need not apologise for returning to the subject of disease prevention by so-called antiseptics and disinfectants.

We should be quite clear as to what we mean when using these terms. An antiseptic is something which will inhibit the growth of germs. A disinfectant is one that will cause their death. The meaning will be better understood by beginners if we say that, for example, a surgical wound is made with the use of antiseptics, and under favourable conditions, such as obtain in hospitals, pathological germs are wholly excluded. Before antiseptics was understood a hospital was the worst of all places to operate in, for "hospital gangrene" carried off about half the subjects which the surgeon's skill should have saved. An aseptic wound is the desire of the surgeon. With animals, in which, of course, we include birds, the favourable conditions of the operating theatre are practically unattainable. They live in dirt. They lie down in their own excreta. They breathe their own vitiated atmosphere in buildings too small for the larger animals, or, as in the case of fowls, too crowded, and, therefore, producing the same results. The conditions then usually met with in veterinary practice, and facing the avian pathologist, are most unfavourable. The wounded or sick creature is already infected with pathogenic as distinguished from innocent organisms. Before a healthy condition can be taken on, the injured tissues must be disinfected. An antiseptic then is a preventive. A disinfectant is a curative, in the sense that it will destroy the cause. A single substance may be both antiseptic and disinfectant, but not all can be so called. Boracic or boric acid is good enough to prevent the development of disease germs of the less virulent type, but it is not strong enough to kill the more vigorous. Others, like permanganate of potash, have only a temporary influence because they decompose in the presence of living tissues, and as soon as this happens they are gone—they have become something else. Chlorine and carbolic acid are too poisonous to be continuously used, and this objection applies with varying force to the other derivatives of coal tar distillation. If then wounds and external surfaces, which we can control and keep under observation, are found to suffer tissue destruction, as well as death of the malignant organisms, how shall we safely attempt the destruction of disease germs inside the animal; those of the bacillus abortus in cows, of joint ill in calves and foals and lambs, of bacillary white diarrhoea in chicken, of coccidiosis in turkeys, of distemper in dog and cat, and many others which at present cause us so much loss?

With a few exceptions, and their powers as yet are not wholly proved, no substance is known that has a greater affinity for disease germs than for the tissues in which they are situate. Perhaps one should say here that germs or vegetable organisms causing disease are spoken of as "parasites" by the expert, but not so generally recognised by the laity. A drug that would fulfil the conditions required of seeking and destroying or killing by contact when directed to their habitat, is not known, unless such attributes are possessed by flavine and acriflavine. The seeking of such a parasitotrope may well engage the energies of the research worker, and bring a reward comparable with the honours reaped by Pasteur and Lister. At present we have to employ substances which act on all forms of living matter and do not discriminate between the disease organisms destroying the tissues and the tissues themselves; or, on the other hand, if we use them in sufficient strength to kill germs, we destroy the host.

Notwithstanding these apparently insuperable difficulties, there is hope, inasmuch as certain specific diseases have already been successfully combated by particular agents. Quinine, for example, is a specific for malaria, and amaebic dysentery is conquered by emetine. The bladder inflammation caused by staphylocci and streptococci are destroyed by hexamine, which by itself has no destructive action on the organisms, but meeting with acid in the urine, sets free formaldehyde, which does destroy them. These bacilli can also be killed by administering to the host substances which in themselves are not antagonistic, but are changed in the tissues, producing an alkaline instead of an acid reaction.

The professional journals sometimes speak of carbolic acid as a "mental disinfectant," since it pleases nurses and relatives to suspend a wet sheet made odorous with the drug, but can no more clear the room of germs than the fisherman's net will clear the sea of fish. Its application to injured fingers and toes is often disastrous, the proteins of the skin are coagulated, and a further result is death or dry gangrene of the injured members.

None of these facts discourage the courageous vendors of specifics whose self-interests bring them to believe that they have discovered some simple herb which will prohibit disease of any and every kind if only used in sufficient quantity and for long enough, and cure all manner of maladies, if given before the last gasp. None of them need want for testimonials from perfectly honest users who happen to take up the proprietary article at a time when accidental losses have been assumed to be due to infectious diseases.

No, we have to wait for the perfect intestinal disinfectant, as we have for the vaccine, which our Editor has been accused of discrediting, while he has but advised the exercise of caution and patience.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Correspondence.

PEDIGREE.

To the Editor of "Eggs."

Dear Sir,—Re your leading article "Pedigree" asking for an answer to Major Lethbridge! I am presumptuous enough to venture a reply to this very complex problem—and problem it is.

Pedigree breeding, as I understand it, is the keeping of **correct** laying records, weights and texture of eggs by means of the trap-nest of any one or any particular set of fowls, and their progeny from one generation to another, year after year.

Now, if we take the above as being near the mark at all, then surely it means continual line-breeding. This taken for granted then, we shall soon see our stock on the downward grade, as always does happen when persistent in-breeding is practised.

If one man or breeder sets up another man, and after two or three seasons he buys back the progeny of his original stock, this cannot be said to cross the strain or deteriorate the value of the pedigree, if it does constitute a break in the records. Then I venture to say that there is no such thing or person as pedigree breeders, since we all know that fresh blood must be introduced into one's stock in order to maintain health, stamina, size and shape and egg-laying capacity.

Yours faithfully,
ERNEST M. MARSHALL.

PEDIGREE.

To the Editor of "Eggs."

Dear Sir,—"Pedigree Poultry." In the words of the classic "there ain't no sich thing," and for this reason that there is no registry of ancestry and performance. The latter is essential in any question as to pedigree, since it is not enough to know ancestry, but what that ancestry has stood for.

Everybody, in fact every living thing, has an ancestry, and a genealogical tree is merely the name of that ancestry, and the Heralds College will quickly make your "tree" on given consideration. But this is insufficient, since pedigree implies not only recorded ancestry, but one with a performance.

Therefore when Pedigree Poultry is advertised one expects information of ancestors and their performance, but since there are no fixed standards as to what constitutes performance each must judge for himself as to the quality of the pedigree.

This, however, should surely be certain, viz.: that a pedigree bird is one that breeds true to type, and it is suggested that the word cannot be made to mean more in the present state of the industry.

Whether it will ever be possible to adopt registration as for horses, for example, is a question for the gods, but where enumeration would not suffice, quality would have to be defined as for a horse, and, in addition, performance, egg-laying ability, during winter and throughout the year, weight, fertility and hatchability.

Yours truly,

C. HESKETH.

PEDIGREE.

To the Editor of "Eggs."

Dear Mr. Newman,—In response to Major Lethbridge's request for a definition of "Pedigree," we are tempted to say a few words on this subject, but, having regard to the fact that "Pedigree" is difficult to define, considering the varied views of various breeders, we would ask our readers to add to or subtract from our deductions according to their own experience.

To begin with, then, we believe the word "pedigree" is haphazardly used by a great many poultry-keepers, due, perhaps, to their insufficient knowledge of what a pedigree bird really ought to be.

A trap-nest record does not in any way constitute a pedigree; at the best it only gives the number of eggs laid during a specified period. It does not record the weight of the eggs, the texture of the shell, the hatchability, the rearability of the chicks, or the breeding value of a hen. The object of pedigree breeding should be the refinement, the modernising, the civilisation of a strain of birds, or a family of birds, and to maintain that degree of refinement it is necessary to breed from that certain family as nearly as possible without unnecessarily introducing fresh blood, about which only little may be known. In our opinion, "Pedigree" should not be confined to an individual but to the family as a whole—that is to say, the whole family should be bred from a number of birds whose characters were excellency itself, and whose all-round performance equalled that of their dams and sires, also whose blood lines were not of different strains. Chicks bred from such birds should be strictly individualised, so that the breeder can pick any bird at random, and definitely give the dam's and sire's record, and also give the lineage of such birds. Each successive generation should be selected, graded, and trap-nested equally as well as their parents. In this way it should be easy to arrive at the degree of relationship existing between two or more birds for many generations back. Every care should be taken to omit no detail of any bird or birds. We consider that if we can give the full details of a bird, including her dam's and sire's record (grand-dam's and grand-sire's if need be), lineage etc., we are entitled to call that bird pedigree bred, provided she is our pure strain and does not carry any alien blood.

To sum up, pedigree breeding is the maintenance of a family of individuals (every one of whose characters is definitely known) by mating two or more of those individuals within the family blood.

Yours faithfully,

PERCY J. RICHARDSON & SON.

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—It is very fortunate that I posted my copy to you on Monday, the 16th inst., or I may have been suspected of pirating the article of the North Carolina Research Department, as per Mr. Gray's letter in this week's "Eggs." Your readers will see for themselves that my notes are almost identical in their findings as the American report, especially if they note the explanation of the CUTTING process.

I never like to draw in a third party nor quote any AUTHORITY when discussing poultry matters, as it always seems to me to show a lack of confidence in one's own experience, but as so many of your readers KNOW the research work carried out by the station, I feel compelled to draw their attention to the very interesting conclusions drawn both by the American Research Station and myself.

Mr. Gray, I am sure, will appreciate the description of the Cutting method I give in my notes, which is amply endorsed by this timely letter.

Dealing with the notes of Cornstalk, I may mention that I was taking my stand from Nature's work, and not dealing with the domestic fowl, which comes up for its meals at ALL times via the Dry Mash Hopper, and what I have said I HAVE SAID until Cornstalk can convince me to alter my views.

Cornstalk must remember that it is one thing to criticise and another to offer PRACTICAL suggestions to help us along the road.

As Cornstalk appears to KNOW that the crop is NOT used to store the food, will he please tell us just what it is for.

The essence of an argument is not only to say that a thing is or is NOT so, BUT to tell us just WHY it is or is not so, so it is up to Cornstalk for the next move.

Dealing with the Gallus BANKIVA, I am not a naturalist, and as this is not part of the discussion, I would suggest that Cornstalk keeps to the point which is: "IS GRIT NECESSARY?"

A. J. HEINZE.

As Dr. Kaupp distinctly states: "In fact the writer (himself) does **not** believe that the grinding in the gizzard is a sharp cutting process," and, later on, says: "From the proventriculus it passes into the gizzard, forcing the soaked grain among the particles of grit, and by a **squeezing** rotary motion reduces it to fineness," and "Birds hold their weight and remain perfectly healthy on either **sharp** or **dull** grit." We fail entirely to see how this endorses Mr. Heinze's statement, for he distinctly said it was a "cutting" process. We fail to see, too, why the quoting of a third party shows a lack of confidence in one's own experience. Confirmatory evidence is always appreciated by those who seek to know. As there is nothing to be gained by continuing the discussion, it must now cease until we can by practical experiment discover the truth.—(Editor).

POULTRY, GOAT AND BEE FARMS.

To the Editor of "Eggs."

Sir,—Turn to the pages of any property advertising paper, and you will invariably be met with—"Eminently suited for a poultry and pig farm." But why should the poultry industry **always** be bracketed with the smelly, if useful, pig? How much more attractive it would read, "Charming Poultry, Goat and Bee Farm for sale in (of course) an old-world village," and how much more sensible and useful too. All readers of "Eggs" know the value of milk in chicken rearing, and, generally speaking, the high cost of it. For this reason alone if we could get Poultry and the Goat bracketted together in the popular mind it would be a great advantage, besides the daily milk provided for the household. Being an ignoramus on the subject, may I hope that your threat, to switch Major Eden on to writing some articles on the subject for beginners, may materialise.

As regards "Bees," I am equally ignorant, and until the article on the subject appeared in your issue of May 28th over the non-de-plume "Confido," I did not know I had any qualification for attending to them. Now, however, I know that, should I keep them, and ladies should wish to see me manipulate them, and one of the little "blighters" should sting me for my pains, I can curse his, or her, ancestors back to the third or fourth generation in the most fluent Hindustani mixed with a little flowery Persian, without in the least offending the ears of the fair ladies! Yes, I have indeed a gift for bee-keeping I little dreamt of, which must be cultivated!!

If, Sir, you could prevail on "Confido" to contribute some useful articles for beginners on "Bees," then in a short time the heading of this letter might be more general in property advertisement columns than it is at present.

I should like to ask "Confido," out of the abysmal depths of my ignorance in "Bee" matters, and on the principle that out of the lips of babes and sucklings **sometimes** emanate words of wisdom, the following question :—

In speaking of good hives he had used this year taking two stories of frames, which made splendidly strong colonies, he said : "Their only fault is, I think, that the bees on their arrival with their load of honey have to climb upstairs a long way, because even the inventive Americans have not as yet perfected a satisfactory kind of "elevator" for the use of bees. Thus to fill the shallow extracting frames upstairs or the 1 lb. sections we love to eat, the bee spends too much time and energy in mountaineering—poor little beast."

Would, or would it not, be possible to have a bee alighting board to correspond with **each** story? I am told that bees have such a perfect "homing" instinct that if you move their hive ever so little when they are out on flight they are quite at sea when they return, therefore those that emanated from the top-storey exit would return there and eliminate the necessity of a "Bee elevator" or "mountaineering." But I quite expect that "Confido" will dismiss my enquiry in five words : "Zuroor yik pagal bat hai" (of a certainty this is foolish talk).

But don't let "Confido" get off the lead, Mr. Editor, for he is a man with imagination, and they are scarce.

Think of the picture he conjures up. The pride of the poultry farm, a White Leghorn pullet "on the mat" in the orderly room of a harassed poultry-keeper, charged with wasting her time, in that she did but lay 300 eggs in a year. Evidence for the prosecution was given by an Italian-English Black bee, who modestly admitted that she usually laid ten times that number **daily!!!** Collapse of the prisoner, and a promise to mend her ways—!!!!

We shall all drive Rolls Royce cars yet!

"QUI HAI."

May we refer "Qui Hai" to Mr. E. J. Madoc's articles on "Bees," which have already appeared.—(Editor.)

INTENSIVISM.

To the Editor of "Eggs."

Dear Mr. Newman,—I do not get as much time for studying "Eggs" as I should like, but I did notice a paragraph in the June 11th issue *re* intensive rearing that I should like to remark on.

My backyard is only 20 yards by 10, and this is my sixth year of intensive rearing, leaving out the first when I had a very few. I have reared 200 chickens a year for five years. During the last three years leg-weakness has been unknown, and this year I have had the most successful season; my losses have been very small, and the birds are all healthy and in splendid condition.

This year, owing to the excessive wet, they have been reared entirely in the houses on wooden floors, because wooden floors make no difference whatever in spite of popular beliefs.

This is how it was done. All chicks were hatched in hot-air incubators, in muslin bags. This prevents half dried birds falling into a temperature of 30 or 40 degrees below that of the tray. They are left in the bags until all are out. Then they are ringed, and put down below all together, so that the temperature is not much below what they have come out of. Next morning they are taken out and put in fireless brooders and reared in them 50 at a time. I am convinced that the heated brooder is responsible for most of the ailments that chicks suffer from. They are fed as directed by you in "From Shell to Maturity," except that a little powdered charcoal is added to the mash, and chickweed is given *ad. lib.* It should be fresh, young, and just coming into bud; limestone grit is also given.

I hatch some 600 chicks a year, and keep about 200 in order to get 100 pullets, as I aim at having 400 eggs a week through December and January, the paying months.

I believe that the reason that I do not get leg-weakness is due to the vitamin supplied in the young chickweed, and not so much to the lime in the grit.

With regard to grit for adults. It is not necessary but advisable for the sake of the lime. My dropping-boards are dusted with lime every morning after cleaning, and if I forget the grit for a week or two it does not make any difference.

I am a great believer in the Intensive system, especially for winter laying; my birds are fit and healthy. Time after time when I have exhibited birds at shows the Press comment has been "very fit," and it is rather curious that they should be specially singled out when they are probably the only intensively bred birds in the class.

It is only fair to say that I keep nothing but Rhode Island Reds. Whether a weaker breed would stand fireless brooders in February, I do not know, as I have never tried them.

Yours faithfully,
J. ARTHUR KNIGHT.

Wharfedale, Stanley Avenue, Wembley, 23/6/1924.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

CORDONS AND SUMMER WORK.—(*Continued*).

Having briefly described in my last article the "cordon" and its uses, I must now pass on to an essential point respecting these trees, namely, summer pruning. Although many do not carry out this work with their bush and young standard trees, with the cordon it is a necessity.

Having to keep the trees pruned back to such a comparatively small area, and there not being any extensions of branches, each year it requires us to summer prune all the other side shoots, remembering always that the one leading stem is left unpruned until the Cordon has reached the total length required to fill its allotted space.

When the trees start to throw out young growing shoots near the base, shorten these back to about 12 inches in lengths, otherwise they will rob the upper parts of the main stem, and prevent us getting a proper balance for the whole of the tree; bearing in mind that if these strong growing shoots are left untouched they would, when winter pruned, more than probably produce fruitless spurs.

August is the best month to start the pruning of laterals, then cut back to four or five leaves, and in the winter cut again, leaving the usual spur of two or three eyes.

Some strongly advocate the Lorette system of summer pruning, which, if it gives more work, is considered to give earlier and more sure results.

It consists of pinching back the points of the lateral shoots in June, and in July repeating the process with the resulting side growths, which come as a result of the first pinching. In August the whole shoots are cut back to the basal buds.

The preliminary pinching of the young shoots set up partial development of these blind basal buds, and when the young wood is entirely removed in August, these basal buds develop into a fully-matured fruit bud or immature fruit bud, which becomes fully matured the next summer. Thus fruit buds are produced on the current season's growth, which is impossible under any other conditions excepting at the end of a young shoot, which, in the case of cordons, is not where fruit buds are required.

In time, as the fruit spurs increase in number or the fruit spurs become congested, the fruit buds are reduced to the two nearest the main stem.

It must not be forgotten that manure must be used with care, as if too much nitrogenous manure is given an excessive growth of coarse wood will result, except when bearing a heavy crop of fruit. This is clear, when we remember that the trees being so limited in area, the roots have not to find nourishment to feed several branches like they have with the bush or standard types.

Before closing this subject of summer pruning, I think it might be wise to refer to this work as it applies to the bush and standard trees, particularly the young ones which we are still developing and training to a certain form or type. If we take a stroll amongst our trees it will be noticed that as a result of our winter pruning the leaders just now are sending out fresh shoots, and in some cases there will be two or three new shoots at the top. Now, I consider that as we want our leaders to be as strong and stiff as possible it is best to completely cut away any top shoots not required, so that all the sap can go to help the development of the best placed leaders.

If this is not done it will often be found that when you start on winter pruning the best placed of the shoots is the weakest of the bunch. In many cases you will notice two shoots of equal strength, and it is obvious that had one been cut clear away in the summer when young, the remaining one would have made a far finer leader.

Of course, where we get two shoots that have made a fork growth, like the letter Y., and space allows of two leaders being trained for extension, then we simply cut back any laterals just below this fork.

What nicer work could you want on a warm summer's day than with the knife and amongst the fruit trees?

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Marketing of Poultry.

By A. V. CLARKSON.

Following on the preliminary article inserted last week regarding the marketing of table poultry, I now propose going into details with instructions and advice regarding the General Manner and Methods of so doing.

There are so many factors which make up successful marketing that it is really very difficult to make an article concise and at the same time easily understandable to the amateur and professional alike. But if those concerned can commit the following facts to their mind, they will then avoid most of the mistakes generally made in marketing table poultry.

"STARVING."

All table poultry should be starved for at least 24 hours prior to killing, neither food nor water being given. If either food or water is left in the crop of a bird it will cause it to turn green during transit. If you are sending alive do not feed the birds before sending them, because by the time the salesman receives the birds, and allows them to cool down prior to killing, only 24 hours will have elapsed.

"KILLING AND PLUCKING."

Birds for the London Market should be killed and clean-plucked. If the producer has not the skilled labour or the time to do this, he should send the birds to the salesman alive.

The only method of killing for the London market is by dislocation of the neck, and many people do not even seem to understand this. Only recently the writer received a consignment of 60 chicken out of which only a dozen had been killed. The remainder had been stifled, with the result that the bodies were all red instead of being white. Immediately after killing the birds should be clean-plucked. By clean-plucked is meant, all feathers and stubbs taken off except those at the top of the neck. Never kill a chicken and send it to the London market with the feathers on. In the first place one cannot tell at a glance whether it died or was killed; in the second place, it is more than likely that it will be putrid on arrival; and in the third place, if it does arrive sound it is very difficult to pluck.

"COOLING BEFORE SENDING."

One of the most important factors regarding poultry for market is that, after the birds are killed and plucked, they should be thoroughly COOLED. It is absolutely disastrous to pack chicken and despatch them too quickly after killing. It is absolutely essential to allow the animal heat to leave the body before packing, and for this purpose it is as necessary to have proper cooling arrangements as it is to have skilled labour for killing and plucking. Poultry packed whilst still warm can only arrive in a putrid condition. This is a mistake which is made more often, and causes more loss to senders than any other.

"GRADING."

Always grade your poultry for market, first with regard to size, second with regard to quality, third with regard to colour.

"PACKING."

During very hot weather dead poultry is very apt to turn green during transit. The safeguards against this are either to gut the poultry prior to sending, or a greater safeguard still is to send the poultry alive to the salesman with instructions for him to kill and clean-pluck.

When packing your poultry to send to the market, always bear in mind that an air-tight package of perishable produce will certainly be rotten on arrival. If you have not suitable crates for live stuff, or boxes or hampers for dead stuff, it is far better to write to the salesman for some (who should send them down carriage paid) than to make a hasty improvised package with detrimental results to yourself, and nothing looks worse on a London market than an incorrectly-packed consignment of poultry.

In the boxes or hampers which the salesman sends you do not pack your chicken too tightly. Use straw for the packing material, unless you have green fern leaves or reeds.

"CONSIGNING."

The next question to arise is the actual despatching of the poultry. The labels sent to you by the salesman ensure the goods being delivered direct into the market. At the station enquire either for "Dealers' Rate," or, if sending alive, the "Live Poultry for Consumption Rate." These are the two cheapest railway rates to send under. With regard to the time of despatching, even those who live a long way from London should find an evening train, which invariably ensures the goods being delivered into the market about 5 or 6 a.m. the following morning. Of course, being perishable goods, the sender naturally sends by passenger train.

"LONDON MARKET SEASONS."

There are four market seasons for poultry—namely, SPRING, SUMMER, WINTER, and the CHRISTMAS trade, and hereunder is set out an approximate tabulated advice programme for the four seasons. It is foolish for senders to bank upon receiving high prices for individual events, such as Derby Week, Royal Weddings, or Exhibitions. The effect of these may be an increased demand, but the increase in price is negligible :—

SPRING.

This is the time when you should reap most advantage from the male birds you produce, because at this season they are scarce, and that is why so many American and foreign frozen fowls are used, but good English stuff is always worth more money. The demand starts with the tiny birds for Petit Poussin in February, and as the weeks go on the demand changes for a slowly increasingly sized bird. until May, when birds under 1½ lbs. are not really wanted. That is why small Leghorn cockerels make such a bad price about this time. Of course, during this time there is always a demand at a high price for large Spring chicken, weighing 2 lbs and over.

See later special article for preparation and packing of Poussin.

SUMMER.

From May till September there is always a steady decline in the price, owing to the fact that greatly increased supplies arrive, in addition to which fact London begins to empty, the people going away for their holidays. Try and find a retail demand for your chicken at the nearest seaside or health resort, and so save expense in carriage and commission, and also obtain a possibly higher price.

If sending to a London market pack loosely; use a well-ventilated crate.

WINTER.

At this time it is very difficult for London ever to receive too much good poultry, although, of course, the prices are not so high as in the Spring. There is very seldom any danger of the weather turning the stuff green during transit.

The back end of the winter you should devote to making the necessary arrangements for early Spring production.

CHRISTMAS.

For some years past the demand for chicken at Christmas has been very poor, owing to the fact that enormous quantities of Turkeys have been imported from the continent at favourable prices, owing to the deterioration of the foreign currencies. This has enabled the consumer to buy a large turkey at a cheap rate rather than a much smaller chicken at a dear rate.

If you are rearing turkeys on a small scale, it will be greatly to your advantage to find a retail customer (after enquiring as to his stability) some time in advance of Christmas, so that you may make the necessary arrangements to your own financial benefit. If you are rearing turkeys on a large scale, you must keep in very close touch with the London market.

POST-MORTEMS—Continued.

M. B. Neither Coccidiosis or B.W.D. was the cause in the case of the three W. Leghorn chicks, but general debility produced by the infestation with a minute parasitic worm, which burrows into the wall of the intestine. Slugs, snails or earthworms are the creatures that carry the intermediate stage of this worm, so that a war waged against them would help to diminish the number of adult worms. Direct treatment is not practical, but the remaining birds should be fortified by giving them forty grains of citrate of iron and quinine dissolved in a gallon of water and used as drinking water.

E. B. H. We find the bird's illness was due to an infected lung, which had a cavernous lesion, due to the spores of a fungus (Aspergillus fumigatus). This is very widespread, and there are many opportunities of contracting it and then it becomes contagious to others. Iron in the food or drinking water at the rate of about a quarter of a grain a day is advised.

Mrs. E. S. P. Infectious pneumonia is the trouble with your chicks. It is caused by the spores of a fungus (Aspergillus fumigatus) which is very widespread, and ALWAYS present in **moss** litter, for which reason I abhor it. Please see enclosed printed advice. Also please note the new rule of " Eggs " by which replies are sent promptly by post, and the fee is 5s.

Mrs. E. M. W. The post-mortem on the White Wyandotte No. 7 showed the cause to be blood poisoning from mortification of an immature egg. It is quite common for birds to show neither pain or illness until quite overwhelmed with toxins and death is upon them.

J. F. The hen examined for you had a chain of egg tumours occupying the whole of the oviduct, and had been there some time, judging by their condensation and absorption of the more liquid elements. Peritonitis was the cause of death. Trap-nesting should have long since led to the weeding out of this bird.

H. A. B. We congratulate you on such excellent management as to arrest diphtheria in its earliest stage of deposit in the mouth. This bird need not have been killed if you had unsparingly scraped away and cauterised the cavity left. We would advise in addition to your vigilant and, we hope, more frequent inspections, dipping the heads in a one-per-cent. solution of permanganate of potash in water, keeping them under for about 20 seconds with the mouths held open. The reason for this is that if a few drops enter the larynx it will destroy the fungus in the one fatal situation it most likes. All the time it is in the mouth you can deal with it, but inside the larynx it forms a ring, and then fills up, and the victim dies quite suddenly of suffocation. For further information you are referred to Capt. Leeney's articles in " Eggs " of more or less recent date.

Mrs. M. E. T. H. We do not find any infectious disease in either of these birds. Both had gastritis, and their hearts and pleural membranes inflamed in a manner consistent with such poisonous plants and seeds as are produced by aconite and digitalis—not by direct action but by their effect upon the heart. The gastritis is more likely to arise from some substance in the food. We are dissatisfied with the results of a careful inspection and invite you to consider the food question, the sources of it and the possibility of contamination before and after your receipt of it. Some of the Asiatic pulses contain subtle poisons which only act after a considerable time when the toxins have accummulated in the nervous system. We have NOT discovered the cause, we but recognise the effect.

F. F. This beautifully coloured bird was the victim of over-feeding. The belly fat was an enormous thickness, and all the organs pressed upon. She produced yolks faster than they could get into the duct, and some died "on the stalk," so to speak. The dead caused absorption of poison into the blood. What you need to do is to give a thirty hours absolute fast, and follow it up with daily fifteen grain doses of sulphate of sodium in the morning feed, cut out the fish meal and more stimulating items, and never mind if they produce a few less eggs. If tension is not lowered you will have further losses in hot weather.

P.S.—The fee is right. We think it better to reply by post day by day, as many diseases are infectious, and in any case it is important to put recommendations into practice as soon as possible.

E. J. G. This bird was the subject of such an acute form of tuberculosis that she had not time to get thin. Every organ was filled with tubercles, and the intestines and gizzard bound up in a mass, as the result of peritonitis. It is, as you probably know, conveyed to other fowls by soiled food in contact with the droppings or on the land. Every precaution should therefore be taken. You will find some useful material in leaflet No. 78 issued free by the Ministry of Agriculture, but it does not describe this peracute form, which we believe to have been only recorded by ourselves.

H. P. T. The post-mortem on the chick showed the cause to be the contagious form of pneumonia, due to the Aspergillus fumigatus. The lungs were studded with minute tubercles of the fungus. The Aspergillus is widely distributed, occuring on litter, grass, wood, etc., and it is very difficult to prevent the birds becoming infected, but the remainder should be fortified by allowing only drinking water in which forty grains of citrate of iron and quinine have been dissolved. Very thorough disinfection of all houses, brooders, and the like, will help to prevent spread, and it advisable to clear up and burn all decaying vegetable matter and dead wood.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

EDITORIAL NOTE.—FISH MEAL.

We have received the following letter from the Steyne Foods, Limited, from which our readers will see that the report taken from the "East Anglian Times" was incorrect in a very important particular :—

> "Dear Mr. Newman,—In your issue of the 25th inst. you publish a reprint from the 'East Anglian Times' under the heading FISH MEAL—A FALSE TRADE DESCRIPTION.
>
> **We** bought this Fish Meal through Messrs. Tidy and Co., not, **they** bought from us, as the 'East Anglian Times' has it.
>
> **We** had the sample analysed at once, and **We,** in the interest of our customers, ourselves and the public generally, reported the case to the Ministry and urged them to prosecute.
>
> We think we are correct in saying that the deficiency in albuminoids was 12.42 per cent. The other figures are correctly shown. Will you kindly give prominence to this letter?"
>
> Yours faithfully,
> STEYNE FOODS, LTD.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Halsey, Wilfrid, Beaulieu Ranch, P.O.—Que Que, Southern Rhodesia.
Melville, Alex. Napier, Tresilda, St. Clement, Truro, Cornwall.
Tatton, R. H. G., Salterswell, Tarporley, Cheshire.
Hughes, Fred. R., Marlborough Street, Faringdon, Berks.
Vernon, A. A., Hillside P.F., Elham, Nr. Canterbury, Kent.
Adams, F. H. Guy, The Elms, Purton, Nr. Swindon, Wilts.
Mees, Mrs. M. Alting, Horton Manor Farm, Hanley Swan, Nr. Worcester.
Garner, J .H., Greet Poultry Farm, Winchcombe, Glos.
Scott, Walter H., Barmley-on-the-Marsh, Howden, E. Yorks.
Heywood, Mrs. Monica, Stonor Farm, Nr. Henley-on-Thames.
Spray, T. A., Barnsby Hall, Newark, Notts.
Harrop, Miss Isabel L., Brookside Farm, Bromley, Stocksfield-on-Tyne.
Stead, John S., Helme, Meltham, Nr. Huddersfield.
Webster, Jas., J.P., The Mall House, Wanstead, Essex.
Webster, Wm. Alan, Hillcrest Poultry Farm, Basildon, Nr. Billericay, Essex.
Gachet, Augustin E., Finningley Rectory, Doncaster.
Richardson, Chas. John, Payhembury, Nr. Exeter.

What our Readers think of "Eggs."

Cherry Orchard Cottage, Bromley, Kent.

Dear Sir,—I must, in conclusion, express my deep gratitude to you for the sound advice you give in "Eggs." It has been of the greatest use to me, and my chicks and adult stock are all raised and fed on your formulas to my considerable profit and the birds' health and stamina.

Yours very truly,
(Signed) HERBERT BINNEY.

Dear Sir,—I have only been a member of the S.P.B.A. since January, but I have gained more knowledge from "Eggs" and the Year Book in that time than I have ever got from other journals in years.

Yours faithfully,
(Signed) H. BRAMLEY.

Cumrew, Heads Hook, Carlisle.
21st June, 1924.

Dear Sir,—In conclusion, may I take this opportunity of expressing my appreciation of "Eggs" with hearty congratulations to the Editor.

Yours faithfully,
(Signed) J. T. POYNTER.

Oldfield, Eversley Park Road, Winchmore Hill.

Dear Sir,—I may say I have only just discovered that "Eggs" is just the book I have been looking for.

Yours truly,
(Signed) J. DAFFARN.

Crafnant, Chester Road, Neston, Cheshire.
9th April, 1924.

Dear Sir, As a beginner, I have only just heard of "Eggs," and take this opportunity of thanking you for the valuable information contained therein.

Yours truly,
(Signed) E. COPELAND.

Frewins Close, South Stoke, near Reading.
9th April, 1924.

Dear Sir,—Your paper, "Eggs," is greatly appreciated, and I shall recommend it whenever possible.

Yours faithfully,
(Signed) (Mrs.) J. V. KIRK.

Long Whatton, near Loughborough.
10th April, 1924.

Dear Sir,—At the same time I would like to state my appreciation of "Eggs." In my opinion it is an infinitely better paper than any of the other poultry publications.

Yours faithfully,
(Signed) C. H. KEITH JOPP (Major).

25, Woodland Road, Barry Dock, Glam.
10th April, 1924.

Dear Sir,—I am only a backyarder, yet I may say I have learnt already quite a lot from its columns, and am bringing your paper before my fellow-members of the Barry Fur and Feather Society at our next meeting. With anticipatory thanks.

Yours faithfully,
(Signed) F. CURLE.

80, Cobden Street, Walsall, Staffs.
25-9-23.

Dear Sir,—I would like to add my personal thanks to your good self for the instructive articles you write and publish from time to time in "Eggs," which have made the keeping of poultry much more enjoyable and also profitable, especially for the backyarder and small man generally.

Again thanking you for past help, and hoping you will be able to keep on the good work.

Respectfully yours,
(Signed) E. O. MORRIS.

Boundary Poultry Farm, Intack, Blackburn.
26th April, 1924.

Dear Sir,—I have been a reader of your valuable journal, "Eggs," for a few months now, and I think it is the best Poultry Paper published.

Yours truly,
(Signed) J. BIRCH.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 27th JUNE, 1924.

GRAIN AND FEEDING STUFFS.—The few lots of home-grown grain now marketed command fully recent prices, but business is hardly worth recording. Imported wheat has advanced further, but the high prices have checked demand and an easier tone was in evidence at the close. Grinding barley is in only moderate supply, and prices show a tendency to rise, despite a by no means brisk demand. Oats attract rather more attention than recently, and although trade remains quiet prices for most descriptions are firm. Maize is the only imported cereal to show a fall in price ,bringing the average for Argentine to 8s. 10d. per cwt. as compared with 10s. 1d. a fortnight ago. There is, however, more steadiness apparent at the current price level.

Milling offals are somewhat irregular, a less active demand and lower prices at Liverpool being balanced by an advance in London. Maize products show a further decline, in sympathy with the raw material, but barley meal is firm. Prices for oil cakes are inclined to advance.

MILLERS' OFFALS.—Bran (British): Bristol, £7; Hull, £5 12s.; Liverpool, £6; London, £6 5s. Broad Bran: Hull, £6 12s.; London, £7 5s. Middlings: Fine (Imported): London, £9 7s.; Coarse (British): Bristol, £9 10s.; Hull, £8 15s.: Liverpool, £8; London, £8 15s. Pollards (Imported): Bristol, £8 2s.; Hull, £7; Liverpool, £6 17s. Rice Bran: Bristol, £7 12s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 3s.; London, £10 10s. Maize Meal: Bristol, £10 10s.; Hull, £9 3s.; Liverpool, £9 15s.; London, £11. Maize Germ Meal: Bristol, £10; Hull, £9; London, £8 12s. Maize Gluten Feed: Bristol, £10 5s.; London, £8 15s.

EGGS AND DEAD POULTRY.

Eggs are in rather smaller supply and meet a good demand at more money, first quality English now averaging 15s. 4d. per 120 against 14s. 3d. last week. Trade for poultry is not brisk, and prices have an easier tendency.

Week-end Prices—Eggs (per 120): British: 14s. 9d., 14s.; Irish: 14s., 13s. 6d.; Danish: 16s. 9d., 14s.; Dutch: 16s. 9d., 15s.; Russian: 9s. 3d., 8s. 6d.; Belgian: 14s. 6d., 13s. 9d.; Italian: 14s. 6d., 13s. 3d.; Styrian: 12s. 3d., 11s. 6d. Lithuanian: 12s. 3d., 10s. 6d.

Dead Poultry (per lb.)—Fowls: Surrey, 2s. 4d., 1s. 10d.: Irish, 1s. 8d., 1s. 6d.; Others, 2s., 1s. 6d. Ducks, 1s. 9d., 1s. 5d. Geese, 1s. 3d., 1s.

EGGS.

Per Doz.—Ashford: First, 1s. 7d.; Second, 1s. 6d. Birmingham: First, 1s. 5½d.; Second 1s. 4¾d. Bridgwater: First, 1s. 4½d. Carlisle: First, 1s. 6d. Chelmsford: First, 1s. 8½d.; Second, 1s. 7¼d. Derby: First, 1s. 4½d. Dorchester: First, 1s. 5d. Exeter: First, 1s. 5d. Hereford: First, 1s. 4d.; Second, 1s. 3d. Hull: First, 1s. 4d. Ipswich: First, 1s. 9d.; Second, 1s. 6d. King's Lynn: First, 1s. 4d.; Second, 1s. 2d. Lincoln: First, 1s. 6d. Llandilo: First, 1s. 3d.; Second, 1s. 2d. Montgomery: First, 1s. 4d. Newport (Mon.): First, 1s. 6d.; Second, 1s. 4d. Norwich: First, 1s. 5d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 7d.; Second, 1s. 6d. Shrewsbury: First, 1s. 5d.; Second, 1s. 4d. Skipton: First, 1s. 1d. Truro: First, 1s. 3d.; Second, 1s. 2d. York: First, 1s. 6d.; Second, 1s. 5d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *6s. 0d.; Second, *3s. 6d. Exeter: First, 1s. 9d. Hereford: First, 1s. 8d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 1s. 10d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 1s. 4d. Derby: First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 0d.

* Per Head.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS. per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office

FIRST POST FRIDAYS

for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £1 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

100 White Leghorn Pullets, February and April hatched; Price, 10s. and 8s. respectively., Excellent laying strain. Particulars on application; inspection invited. —L. Borrett, Hilton Poultry Farm, Finchampstead, Berks.

1924. PULLETS. 1924.

Selected, large, big-framed Pedigree Pullets, from egg record parents, January and February, 1924, hatched. Light Sussex (Russel-Cook), Rhode Islands (Golden-Russel), White Wyandottes (Cam-Barron), all guaranteed healthy; 8s. 6d. each, £5 dozen; carriage paid.—

G. W. BELL, N.U.P.S.,
"Lord of the Manor," St. Lawrence, Ramsgate.

PURE-BRED BARNEVELDERS

Pullets, February, 1924, Imported Schimmel's. Cockerels, February, March, 1924, Middleman's direct.—Mrs. Norman Parish, Member British Barnevelder Club, M.S.P.B.A., Avona, Bramhall, Cheshire.

Are they growing *right*?

This has been a difficult year for rearing. Ful-O-Pep Growing Mash is more vital than ever if this season is to show the poultry-keeper a profit.

Keep feeding the Ful-O-Pep way. If birds are to avoid disease and grow to profitable winter layers, they must have maximum nourishment. Feed the perfectly blended, easily digested Ful-O-Pep Growing Mash. It is the surest preventative of such scourges as Coccidiosis—for which there is no cure—and is the finest guarantee against "weeds."

Feed the Ful-O-Pep way for profit.

Read the chapter on rearing in the Ful-O-Pep Monthly Guide, sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP GROWING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE.

Tip several days' supply straight from bag to hopper. Give one mixed grain feed daily. Sold only in sealed bags. When buying Ful-O-Pep always look for our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag

Guaranteed by QUAKER OATS LTD. 11, Finsbury Sq. E.C.2.

PULLETS.

FOR SALE.

Ten L. Sussex, hatched late January, splendid laying strain, 12s. 6d. each. — Cartwright, Welland Valley Poultry Farm, Seaton, Uppingham.

1924 RHODE ISLAND RED PULLETS.

Major Robert Lethbridge, Broomhill, Tiverton, offers sound well-grown 3, 4 months old pullets, individually marked to special hens or to S.P.B.A. registered pens, also few early cockerels from 285, 280, 242 egg dams. All breeding stock trap-nested; records 200 to 285. Details on request.

UNIQUE OPPORTUNITY

of obtaining good stock. 100 W.L. (Snowden), W.W. (Rogers), L.S. (Chivers', hatched 1922, for disposal. Leghorns are related to my S.P.B.A. Test Winners. These are not throw-outs, but birds of quality. Price for quick sale, 7s. 6d. each; not less than 4 sold, reduction of 5 per cent. on 10 and over. Crates returnable. —Major Heaps, Rosehill, Market Drayton, Salop.

COMMANDER TIPPET,

Goring Heath Pedigree Poultry Farm, Oxon, offers 150 1923 hatched, trap-nested

WHITE LEGHORN PULLETS,

all L2, of grand stamina, which must be cleared before August. They will make

VERY VALUABLE BREEDERS

for next season. 9s. 6d. each, £5 per doz. Offers invited for quantities.

1924

LIGHT SUSSEX PULLETS.

January, February, March, from own Franklynn Strain hens, mated with cockerels; dam's records 315, 240, 233, 220, 180-200, and L2. Three months, 9s.; four months, 12s.; five months, 15s.; carriage paid on six.—Spencer Jones, M.S.P.B.A., Combe Poultry Farm, Little Waltham, Chelmsford.

CAPTAIN STRONG, R.N.

1924. EXHIBITION PULLETS. 1924.

White Wyandottes, Rhode Island Red, Light Sussex, White Leghorns of the leading strains, perfect in type and colour; very hardy, raised on free range, 660 above sea-level; 8s. to 15s.; Cockerels, £1 1s. Vacancy for Pupil. — Hillerton Poultry Farm, Bow, Devon.

W. CRABTREE

can supply immediately 1922 W. Leghorns and W. Wyandottes at 5s. each; 1923 Pullets at 6s., 10s., and 15s. each; and six months old pullets for August to October delivery at 15s., 20s., and 30s. each; 2s. 6d. per bird deposit with order, all carriage paid and crates free. I have seven pens (56 birds) in the first four positions in the principal laying trials. — **Twiston, Near** Clitheroe, Lancashire.

LIGHT SUSSEX.

1924 PULLETS.

Over 400 well-grown Feb. and March Pullets, off free range, from highest class Utility Prize-winning Stock. Approval. 4 months, 10s. 6d.; 5 months, 13s. 6d. delivered.

STONESTILE FARM,
CHARING, KENT.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, July 9th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

PEDIGREE AND LINE-BREEDING.

Mr. Ernest Marshall,* in his very interesting letter anent the definition of a pedigree, after telling us what he understands it to mean, remarks:—

> "Now if we take the above as being near the mark at all, then surely it means continual line-breeding. This taken for granted then, we shall soon see our stock on the downward grade, as always does happen when in-breeding is persistently practised."

Is Mr. Marshall correct in the assumption that it means continual line-breeding? Surely the question is worth discussing—and in view of what we may call the "newer" knowledge—is the oft-repeated advice NOT to cross strains sound, or shall we say STILL sound?

We cannot answer these questions positively, but we may be able to find excellent reasons for suggesting that such definite assertions are in need of qualification.

It is curious that when breeding for high fecundity was even less understood than it is now, that almost every expert advised those who were fortunate enough to possess a pen of good layers, either to mate them to a good male of *another* strain, or of another breed. When we understood a little more, the advice given was diametrically opposed to this, and while not definitely stating that line-breeding was a necessity, frequently left the breeder with no alternative.

Now in what follows we shall probably see that the advice given in either case was not unsound, only we may find that it did not go far enough.

We may infer from the advice to cross strains or breeds so repeatedly given in the old days, that the writers' observation had led them to believe that crossing did actually lead to increased egg production, Nor is this surprising, for if we start by crossing a strain of low producers it would be curious indeed if the result of the cross did not lead to some increase in egg production. A cross, for example, between Cochins and the old Black Spanish male, would be almost certain to result in increased egg production in the progeny. It would be easy for the man to say, "The cross is better than the pure; here is the evidence." On the other hand, we may have a man with a pen of pure breds, good layers, who decides not to cross, but mates them to a low fecund male of the same breed or strain. He finds the progeny are far worse layers than their dams, and lends a ready ear to the man who has been successful with the first cross.

Now we come to the advice NOT to cross strains, and we must see on what it is based. The explanation given by those who uphold line-breeding has always been that it "fixes" desirable characters. In reality this is not a sound definition, for it does *not* fix characters. It simply prevents the introduction of the undesirable characters which are likely to prove dominant to those which we wish to conserve. It is then on this idea that the advice was given NOT to cross strains, and in the main it was sound advice, but it has this weakness, it is of little value unless we know the *history* of the individual, for obviously there must be individuals *within* the strain which possess undesirable characters, and if we mate these in our ignorance of their history, the effect will be just the same as mating with another strain. Therefore, although the advice was not unsound, it did not go far enough, for we were not able to analyse the characters—to understand that we could segregate those desirable; in the individual.

To illustrate our meaning. Hurst identified five pairs of genetic factors:—

DOMINANT.

(E) denoting early sexual maturity. (W) Fast rate of winter production. (S) Fast rate of spring production. (M) Slow rate of autumn production. (H) Broodiness.

RECESSIVE.

(e) Late sexual maturity. (w) Slow rate of winter production. (s) Slow rate of spring production. (m) Fast rate of autumn production. (h) Absence of broodiness.

Thus for high egg production we want pullets carrying the following factors, E. W. S. m. h. It will be easily seen that assuming we have birds "pure" for these factors, that by introducing blood of another strain without knowing its history we may get E. W. S. M. H. That the broody factor H. may seriously affect W. and S., and that m. being recessive to M., our chances of getting really highly-fecund pullets in the progeny, that is to say, birds with records of 220 and over, is considerably lowered.

But assuming Smith has a pen carrying the five desired factors, and Brown is in the same happy position, what is the argument against their crossing strains, or what is the argument for line-breeding; or, to go even farther, what is the argument against cross-breeding? It has always been urged that the crossing of strains or breeds causes wide variation in the progeny, and this argument has been applied to fecundity. In a general sense it is true, but when we can find individuals which are "pure" for the desired characters, will the fact that we cross them with another strain or breed, which is also "pure," result in that wide variation? It would seem not, but we must not be too positive.

It will be rightly said that this is at variance with what we have previously written in these columns. That we freely acknowledge, particularly in relation to cross-breeding, which we still believe unnecessary and against the interest of the breeding stock in the country generally; but we should be failing in our duty to our readers if we persisted in presenting only one side of a question when we had discovered there was another.

The general statement NOT to cross strains still holds good. It is only when we are thoroughly acquainted with the history or the individuals of both strains that we dare run the risk, but the argument in favour of line-breeding completely breaks down where fecundity is concerned, as far as we can see. It has been said by some people that there is too much pedigree breeding. In reality there is not enough. Line-breeding involves too many risks, even in experienced hands. If we can qualify the advice not to cross strains, it seems that the problem of breeding highly-fecund stock will be considerably simplified. All that is needed are more complete and reliable records.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Modern Poultry Feeding.

By TOM NEWMAN.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale.

(*Continued.*)

Similar observations had been made by other workers with birds. A general re-arrangement of the diet was then made in respect of B vitamin. Instead of being supplied as a daily quantity, a constant proportion was added to the food, 0.5 g. was included for every 30 g. oatmeal. In the case of Group II., more marmite was given against the higher quantity of oil. The diets were:—

	Group I.	Group II.
Oatmeal	180 g.	180 g.
Cod Liver Oil ...	5 cc.	12, 5 cc.
Marmite	3 g.	5 g.
Lemon Juice ...	30 cc.	30 cc.

Extra for each group as wanted.

Oatmeal	120 g.
Milk	80 cc.
Marmite	2 g.

With the increase in size of the birds, and their need for more, the extra food was later incorporated with the daily supply.

On these diets both groups were kept in perfect health for five months, until the experiments had to be terminated. The cocks began to crow in the third month, the birds were mature in five months, and the sexes were separated. The hens laid eggs at the end of six months.

Excluding an accidental loss from a bird swallowing a nail, 21 out of 23 chicks, or 90 per cent., were reared.

It was thus found possible to raise chicks from the day of hatching to maturity in the laboratory, if B vitamin were added according to the food consumption and A. and C. vitamins at a small rate per day.

GROUP III.

This experiment was designed to confirm the previous one, and at the same time to test the value of the good proteins of milk. Instead of using milk, which is so variable in composition, dry preparations of casein and secwa (dried whey) were used. Oatmeal remained as cereal. No additional fat was included, and salts were in abundance. No account could be taken of vitamins in the foods, and they were added in the form of cod liver oil, marmite and lemon juice. The proportions in which the constituents were included were altered during the course of the experiment, mainly to reduce the cost of the feeding.

The diet was as follows:—

Oatmeal: 30 g.
Casein: 15 g., then 10 g., finally 6 g.
Secwa: 15 g., then 10 g., finally 6 g.
Cod Liver Oil: 2,5 cc., then 5, 0cc., finally 7, 5cc. per day.
Lemon Juice: 15 cc., then 30, finally 45 cc. per day.
Marmite: 0.25 g. per 30 g. oatmeal throughout.

Nine day-old White Leghorns were used. The experiment started on August 21st, 1922. As expected from the work of Osbourne and Mendel (1912-14), the birds grew very rapidly. In three weeks they reached the weight of the birds of Groups I. and II. at the age of six weeks. The cocks began to crow at the age of 40 days, and 18 days later the sexes had to be separated. A group of one cock and four hens was then made. The hens began to lay at the age of 139 days.

No birds were lost. Their health and general condition were excellent throughout, and they moulted rapidly in October The weekly weights and food consumption are given in the tables. A continuation of the experiment to test their egg laying was not possible.

Chickens can thus be successfully reared in the laboratory if all the known constituents of a diet are present in suitable amounts. With protein of good quality, the growth is very rapid. It may be noted that confirmation of the rapid growth and excellent condition of chickens on this diet was obtained by Miss Malcolm and Mrs. Pember on their poultry farm.

GROUP IV.

A simplification of the previous diet was attempted in this experiment. The casein and secwa were replaced by dried skim milk. At the same time white rice was used in the place of oatmeal in order to have a cereal not containing B. vitamin. It was desired to find also the amount of B. vitamin needed to balance rice. B. vitamin was supplied by the yeast extract, cerema instead of marmite.

The diet was composed of:—

White Rice: 30 g.
Dried Skim Milk: 30 g.
Cod Liver Oil: 0.5 cc. per bird per day.
Cerema: 0.25 g. per 30 g. rice.

Lemon juice to supply C. vitamin was omitted, as many workers had kept birds for long periods without it, and it was desired to test this point in a long trial.

Twelve day-old Light Sussex chicks were used.

Signs of leg-weakness were noticed in the fourth week, and were quite distinct in the fifth week. The amount of cerema was doubled, and the birds separately dosed with 1 g. cerema in a little water. They were slightly better after three doses. The amount of cerema was increased periodically until it reached 2, 5 g. per 30 g. rice. It was not possible to save all the ill chicks, and ten died. The other two were raised to maturity.

Assuming for the present that cerema is equal to marmite in B. vitamin content, an assumption which had to be proved the result showed that more B vitamin is required to balance rice than oatmeal. In other words, oatmeal contains a considerable amount of B. vitamin.

GROUP V.

A preliminary test of the value of cerema as a source of B. vitamin was now made.

The same diet as used for Group III. was employed, except that dried skim milk replaced casein and secwa, and cerema replaced marmite. The diet was:—

Oatmeal: 30 g.
Dried Skim Milk: 30 g.
Cod Liver Oil: 0, 5, later 1, cc. per bird per day.
Cerema: 0, 25 g. per 30 g. oatmeal.
Lemon Juice: 1 cc. per day per bird omitted atfer the 37th day.

The experiment lasted for 13 weeks. Ten day-old Light Sussex chicks were used.

Five birds were lost by accident during the second week from the smoking of the paraffin lamp of the brooder. No cause of death other than the lungs filled with soot could be found on post-mortem examination.

The other five birds were raised to maturity without any sign of illness. On the oatmeal diet with dried skim milk, the same amount of cerema is required as marmite (Group III.). It is assumed that the dried skim milk has as much B. vitamin as casein and secwa together.

(To be Continued.)

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS, 1923-1924.

Report for the Eighth Period.

The eighth month (May 15th to June 11th) records a continuation of the decline in production, the average output being 101 eggs per pen of six birds, compared with 111 eggs in the previous period. Prices have remained at a low level, but with the reduced output they should shortly take an upward move, to the advantage of those pens giving consistently good returns.

Broodiness has been very prevalent, but the general health of the birds has been good.

The following are the leading positions in each section, Pen No. 163 (Light Sussex) still holding the premier position in the Trials:—

SUMMARY OF THE LEADING PENS.

Section 1: White Leghorns.—No. 1, Major W. Hayland Wilson, Longparish, Hants, 922 eggs; No. 2, H. Smith, Low Shiregreen, near Sheffield, 870 eggs; No. 3, J. L. Brown, Wick Court Egg Farm, near Bristol, 893 eggs.

Section 2: White Wyandottes.—No. 1, Mrs. Alec Wilson, Garth, Breconshire, 871 eggs; No. 2, J. and W. Purdie, Lanark, 872 eggs. No. 3, The Misses D. and M. Keech, near Market Harboro, 874 eggs.

Section 3: Rhode Island Reds.—No. 1, G. W. Reeves, Whitchurch, Salop, 877 eggs; No. 2, F. and A. H. Sanders, Lutterworth, near Rugby, 888 eggs; No. 3, Mrs. H. E. Powell, Dunchurch, near Rugby, 790 eggs.

Section 4: Sussex.—No. 1, Col. A. Dugdale, C.M.G., D.S.O., Moreton-in-the-Marsh, Glos., 967 eggs; No. 2, Mrs. Alistair Robertson, Storrington, Sussex, 909 eggs; No. 3, W. M. Golden, Leire, Rugby, 856 eggs.

Section 5: Rocks.—No. 1, F. R. Welch, Bewdley, Worcs., 866 eggs; No. 2, Capt. A. A. Plimpton, Beverley, East Yorks, 878 eggs; No. 3, L. A. W. Wright, Loxley, Warwick, 801 eggs.

Section 6: Barnevelders.—No. 1 W. R. Partridge, Woodmancote, Cirencester, 721 eggs; No. 2, Miss C. E. Roads, Bletchley, Bucks, 691 eggs; No. 3, Mrs. K. Manwaring, Horsmonden, Kent, 691 eggs.

Section 7: Black Leghorns.—No. 1, Frank Snowden, Keighley, Yorks, 875 eggs; No. 2, G. B. Metcalfe, Lechlade, Glos., 838 eggs; No. 3, J. H. Hodkinson, near St. Ives, Hunts, 812 eggs.

Section 8: La Bresse.—No. 1 H. Durrant, Hurstpierpoint; 777 eggs; No. 2, Mrs. Hines, Winchester, 806 eggs; No. 3, The Purley Poultry Farm, Ltd., Purley, Surrey, 771 eggs.

Section 9: Anconas.—No. 1, W. Hamnett, Blackpool, 780 eggs; No. 2, F. E. Derham, Hilton, Derbyshire, 734 eggs; No. 3, S. Street-Porter, Isle of Ely, Cambs., 695 eggs.

Section 10: Columbian Wyandottes.—No. 1, S. J. Shepherd, near Bridgnorth, Salop, 703 eggs; No. 2, L. H. Wace, Solway Ash, Bridport, 727 eggs; No. 3, L. H. Wace, Solway Ash, Bridport, 675 eggs.

Section 11: Any Other Variety.—No. 1, H. B. Howe (Black Minorcas), Stoney Stanton, 839 eggs; No. 2, The Ryhall Mill P.F. (Brown Buttercups), Lincs., 729 eggs; Longworth Bros. (Buff Orps.), Rawtenstall, 675 eggs.

Exhibition Section.—No. 1, A. Howard (Light Sussex), Maidenhead, 853 eggs; No. 2, W. Hamnett (Buff Rocks), Blackpool, 868 eggs; No. 3, Ouse Manor Farms (Golden Barred Rocks), Sharnbrook, Beds, 834 eggs.

SINGLE PEN TEST.

Section 1: White Leghorns.—No. 1, Miss H. Baylis, Stratford-on-Avon, 168 eggs; No. 2, S. Street-Porter, Isle of Ely, Cambs, 172 eggs; No. 3, Allen Bros., Harrogate, 168 eggs.

Section 2: White Wyandottes.—No. 1 E. Watson, Earby, near Colne, 180 eggs; No. 2, C. W. Shepard, Malpas, Cheshire, 163 eggs; No. 3, E. Clough, near Lyme Regis, 181 eggs.

Section 3: Any Other Light Breed.—No. 1, C. W. Shepard (Black Leghorn), Malpas, Cheshire, 166 eggs; No. 2, B. Robinson (Black Leghorn), Spilsby, Lincs., 156 eggs; No. 3, G. B. Metcalfe (Black Leghorn), Lechdale, Glos., 140 eggs.

Section 6: Any Other Heavy Breed.—No. 1, B. Robinson (R.I. Red), Spilsby, Lincs., 165 eggs; No. 2, Major R. M. Woolloy (R.I. Red), Barford Saint Martin, 158 eggs; No. 3, A. White (Light Sussex), Malpas, Cheshire, 157 eggs.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

COUNCIL MEETING.

The monthly meeting of the Council was held at Rudgwick, on Wednesday, 25th June, the President, Mr. J. G. Kitson, being in the chair.

Members present were:—Miss Maddison, Mr. J. Smart, Mr. P. Hedworth Foulkes, E. J. Meekings, Mr. E. Bostock Smith, Mr. J. H. Dowden, and the Treasurer and Secretary.

Letters of apology were read from Mrs. Hunter, Mr. Lester Spurgeon, and Mr. A. Harold Paine.

New Members.—The Secretary reported that 120 new members had been elected during the month of May. This was a new record for the month. The total number of fully paid up members now exceeded 6,000.

Census Papers.—Over 2,000 census papers had been received. This was disappointing, and the chairman suggested that an appeal should be made through the columns of "Eggs" for members to return the papers without further delay.

Letters had been received from the Secretary of the Ministry of Agriculture for Northern Ireland, accepting the offer of the Council of a Challenge Cup to be awarded to the owner of the pen of pure-bred birds making the best winter record during the Laying Test, to be held under the auspices of the Ministry.

A similar letter had been received from the Secretary of the Board of Agriculture for Scotland, but the Department of Agriculture for Southern Ireland had declined on the ground that a cup for competition open to all Ireland is already offered by the Department.

Finance. — The Treasurer submitted the Financial Report, which was declared satisfactory and adopted.

"Eggs" Committee Report.—The Chairman stated that he had again a most satisfactory report to make.

Mr. Newman stated that he had received complaints in reference to firms advertising for eggs and table poultry. He had stopped these advertisements on the first complaint, but several readers had failed to obtain the money for the goods supplied. He regretted to say that this class of fraud appeared to be on the increase. They had done all they possibly could to assist their readers, but the trouble was that these individuals managed to keep just within the law, and they had been advised that action could only be taken in the County Court.

After a long discussion it was decided that if further complaints were received, the Council should appeal to members to supply sufficient evidence so that action could be taken.

Foods Committee Report.—The President reported the result of an interview he and the Secretary had had in reference to the standing of the Association should the Food Purchase Scheme be adopted. That interview had been very satisfactory.

After a long discussion the following committee was appointed to draw up the proposed rules to be submitted to the next meeting of the Council:—The President, Mr. P. Hedworth Foulkes, Mr. E. Bostock Smith, and the Secretary.

It was agreed to withhold publication of the scheme until it was more fully advanced. Next meeting of the Council was fixed for 30th July.

LAYING TESTS.

Readers will be interested to know that the Harper-Adams' Agricultural College is now making provision for its next year's Laying Trials, and among other changes, the College authorities have decided to include Championship Sections for Light and Heavy Breeds.

Full particulars of the trials will shortly be published.

SEX RATIOS.

I have received the following letter from Professor M. A. Jull on the question of Sex Ratios. He has also kindly sent me a paper, entitled "Can Sex in Farm Animals be Controlled?" which we are publishing in another part of this issue:—

"Dear Sir,—Dr. Cole, Chief of the Animal Husbandry Division of this Department, has just called my attention to the reference in the May 21st issue of "Eggs" to the problem of sex ratio. Your correspondent gave his experience in that issue of securing only 37 pullets out of 153 chicks, which in itself is quite interesting.

It has been my lot to work with the sex ratio problem for the past four years, and I am taking the liberty of enclosing a very preliminary report on some of the results secured. It would have been very interesting indeed if your correspondent could have determined the sex ratios of the chicks that died from hatching time until he made the observations as reported. Also, it would have been interesting if he could have determined the sex ratios of the embryos that died. The sex ratios given in the enclosed pamphlet refer to the proportion of sexes which hatched as well as those which died from the 12th to the 21st day of incubation.

The study of the sex ratio problem should include a consideration of the possibility of the differential embryo mortality as well as chick mortality. As a matter of fact, the theory which has been long held by some scientists is that sex is largely a matter of metabolism, males being on a higher metabolic level than the females. There are several observations which support this view, but, on the other hand, it does not rest upon very secure ground in view of the widespread equality of sexes of all kinds of animals existing under all sorts of conditions in all parts of the world. If sex were entirely dependent upon metabolism then we should naturally expect to find abnormal distribution of the sex ratio in colder parts of the country, for instance, as compared with the more tropical parts. In spite of this, however, we find that in most species the division of the sexes on the basis of approximate equality is one of the outstanding phenomena of life. Therefore it is very difficult indeed to appreciate that sex is entirely a matter of metabolism, and, furthermore, the metabolic theory does not take into consideration the well-established fact of the significance of chromosomes in the inheritance of sex.

Yours faithfully,
M. A. JULL,
Senior Poultryman,
United States Department of Agriculture, Washington."

FRAUDULENT ADVERTISEMENTS.

As will be noticed in the report of the Council meeting, complaints have been received in reference to advertisers for eggs and poultry produce. The Council are anxious to take action in the matter, if they can get the necessary evidence, but so far nothing has been received which would enable them to do so. These individuals just manage to keep within the law, and in most case action can only be taken in the County Court.

In one case we communicated with the police, but although they told us that numerous complaints had been received, they were debarred from taking action.

It is made all the more difficult, too, because when we receive these complaints some readers stipulate that whatever is done their name shall not appear.

I may say that we have had only three complaints in reference to advertisements appearing in "Eggs," and these have been promptly stopped, and we have been able to help some of our readers.

We are now concerned with a firm in Worcestershire, and if any of our readers have had any difficulty with them, I shall be glad if they will send me fullest particulars.

OUR FRONT COVER.

In last week's issue we published on our front cover the photograph of a hen, bred and owned by the Misses Ransford, which had laid 278 eggs, averaging 2¼ozs. each, in the twelve months.

We visited the Misses Ransford's farm some two or three years ago, and were much impressed, not only with the stock itself, but with the system of breeding. It is truly an up-to-date Stud Farm, and possibly no better illustration could be found to refute the assertion—" that healthy, vigorous stock cannot be bred from very heavy producers." It is surely an illustration of what skilled breeding can do, for from birds with wonderful records the Misses Ransford have a breeding stock of pronounced vigour, plenty of size, and size of eggs.

The list of pedigree cockerels which they have sent us is one of which any breeder may well be proud. It is one of the most complete that we have seen, and should satisfy even the most exigent client. The stock in this country would show a considerable improvement if there were more breeders who carried out the system so thoroughly as the Misses Ransford.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Waroop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

B. N. D. (Andover). You are quite right, if L2 is mated to L2, all the progeny will be L2. If your friend says this is not correct, it is probable that environmental conditions upset his calculations, or that he had not genuine L2 birds on both sides. (2) I would never lay down any hard and fast law, everyone must study their own conditions, and it is quite likely that you will do right by following maker's instructions, but as I have so often said before the rules that apply on the top of the Sussex Downs, would not equally apply in the Thames Valley, or, to put it in another way, what is right in the cellar may be wrong in the attic. (3) This sample of fish meal is very "smelly," and contains an excess of oil. I would not like to use it. The ground oats are good, the little red wheat is the better sample of the two. (4) The S.P.B.A. was started on July 15th, 1915. It has now over 6,000 fully paid-up members.

Herne (———). As you did not sign your name, we cannot reply to your letter by post. Perhaps you will recognise the query by the answer. The feeding of the chicks is correct, and there seems no reason to think that their unthriftiness is due to this cause, unless there is digestive trouble caused by the mash being fed in too sloppy a condition. I do not think any improvement would be effected by switching them on to dry mash; it is much more probable that the cause is overcrowding or faulty ventilation. Are they by any chance huddling in a corner at night? Tonics will not help. Examine the conditions generally, and see that there is proper ventilation, and no overcrowding. Get them to perch. They should be doing so at ten weeks old, and they will grow the more rapidly and be the healthier for it. (2) The breeding pen hardly seems good enough to keep for another season. I should be inclined to breed from the best of the pullets you had from C ———. Do not mate them until February, and be careful in the selection. Reject any that are on the small side.

Disappointed (Harrow). Sorry you have had such an unfortunate experience, but if you learn the lesson you will get over your disappointment. You appear to have bought a lot of old cross-bred hens—whether they are Rock-Wyandottes or not I cannot say; probably they are mongrels, bought in Smithfield Market to fill your order. Your best plan will be to sell them as fat hens at once. As you have been feeding assiduously on biscuit meal dried off with barley meal, they should be in excellent condition. Your best plan will be to get some Black Leghorn pullets hatched in April. These would be more suited to your conditions, but don't send to Stratford for them. The man you had the others from is a notorious dealer. You will find that the man who has a dozen or so breeds to offer very rarely has a poultry farm.

Cockerels (Woodhampton). I can offer no explanation as to why you should have such a high percentage of cockerels. We have one or two other letters to the same effect, but we always get them every season. This is not a "cockerel" year, and I don't believe "there is sich things." Please read Dr. Jull's letter, which appears in S.P.B.A. notes, and also what Dr. Crew has had to say on the subject. (2) You are feeding too much fish meal, especially as your birds have a fair amount of range. I should reduce it by one-half. The ground oats are good value for the money. (3) I do not think the cockerel worth keeping another season; you could not mate him to the pullets.

Feathers (Bristol). No, the condition of the feathers is not due to the depluming mite, but to a parasite located in the glands at the roots of the feathers, and which appears to live on the secretions which nourish them, so that they shrivel up. Pull out these shrivelled feathers, and soak the part with a two per cent. solution of Izal, and add a little flowers of sulphur to the mash. The new feather will be quite healthy if you adopt this treatment. (2) You can only discover which of your Wyandotte hens are pure rose comb by the breeding test. Those which are pure for rose comb will throw all rose comb progeny, even if mated to a single comb male, but, of course, a percentage of the progeny would carry the single comb factor, even although they would not exhibit it.

A. J. (Bracknell). I imagine that the thin-shelled eggs are caused by the very stimulating nature of the diet you are using, although you do not give the actual proportions. Replace the maize gluten meal with maize meal, and add one part Sussex ground oats, also reduce your fish meal by one half part. If the ducks have plenty of range then I would not give any fish meal at all at this season.

A. R. (Crawley). Please note our rules do not permit us to reply by post to non-members of the Association, unless a fee of 2s. 6d. is paid. I do not know of any Co-Operative Society in the Tenterden area such as exists in the Eastern Counties. In that event it might be better for you to send your produce to a local market, such as Ashford, or you might get into communication with the Secretary of British Egg Producers, Ltd., 2, Lindsey Street, Smithfield Market, E.C.1. It would be best if you avoided the higgler entirely. Thanks for your appreciation of "Eggs."

C. (Surrey). The broad bran at 10s. 6d. per cwt. is a very good sample. Fancy plate middlings at 11s. 6d. are good, but the price is rather high. The Sussex ground oats at 14s. 9d. are also good value for the money, but I do not like the germ meal. It has a very rancid smell, and appears to contain a very high percentage of oil. The white oats are very good. Except that the middlings are a little high in price, and the germ meal unsatisfactory, the whole of the samples appear to be fair value for the money.

"Wounded Colonel" (Ashford). In answer to your questions, I am sorry that you have started your fattening at this season of the year, as in mid-September prices are not very high, and unless you are an expert, I cannot see that you will get your cockerels to weigh 4lbs. or 5lbs. at twelve or fourteen weeks of age. You are referring to the Plimmer-Rosedale system, but I do not know to what mash. If you will let me have further particulars, I may be able to assist you. Probably you mean the Wellingham experiments of last year, but Dr. Rosedale was not connected with these. If you could get early hatched 1924 Light Sussex pullets they would be best for your purpose. Failing that, you must get 1923 birds, and mate them to this year's males, preferably January hatched. A good formula would be: 2lbs. bran, 4lbs. middlings, 1lb. each maize meal and Sussex ground oats, ½lb. dried yeast, and ½lb. fish meal. Skim milk for your chicks would be excellent. Of course, if you are using that the dried milk would be entirely unnecessary.

N. P. B. (Newport Pagnell). From your description, I think the hen is suffering from canker, and you should isolate her. Remove the yellow growth, and touch the spot with liniment of iodine. It would be wise to examine the mouths of all the birds in the pen. If you will send me more particulars I may be able to advise you. The details you give me are not sufficient for me to go on.

G. R. (Carterton). The toppings at 9s. 3d. cwt. are very poor stuff. The fish meal is of good average quality, but you should get some guarantee as to the salt content. The bran is just fair. You really ought to get something better. You must try and get better bran and toppings, as they form such a high percentage of the total ration. No, it would be better to give your growing pullets a mixture of wheat, clipped oats and maize, in addition to the mash. Feed the cockerels as you are feeding the pullets.

H. P. (Leeds). I think your best plan would be to plough the land up, but not lay it down to grass. As you will be running the birds in duplicate runs it will be better to crop each run when you are resting it. It would be a good plan to plant it out with thousand-headed kale.

POST-MORTEMS.

F. W. P. R. We regret to inform you that it is vent gleet in the hen examined. It is important to isolate suspects. If a cock is with them, remove him, whether clean or not. It is not very likely that you will be running them at this time of year together. Killing one or two at first is often the best way of combating this trouble. If you wish to treat affected birds, clean up the galiry mucus with a solution of carbonate of soda in warm water, and then with a mop of sponge or swab or cotton wool, clean out the cloaca. It is quite easy to obtain access to the region affected, but lotions pass out again too quickly, or you could syringe in perchloride of mercury of the strength of one in two thousand of water daily. Whichever of the disinfectants you use, you need to take a lot of trouble to effect a cure, as it is an obstinate malady, and hens peck themselves, and other hens peck the injured membrane. In the latter stages use one part glycerine-of-alum to two parts boiled water, mopping into and around the vent. Your efforts will be most profitably directed to prevention.

J. B. W. H. We find no infectious or other specific disease in this pullet. The gizzard was paralysed by an enormous quantity of grit, some of the pieces being very large. The bowel was quite empty, no ingesta being able to pass out of the gizzard. The crop was full of grain unacted upon.

G. M. We have examined the pullet, and find a disease of the kidneys, which causes their enlargement and the blocking up of the tubules with solid urea. This being thrown back on the circulation, causes self-poisoning (urasmic). It is not an infectious malady, but is caused by something they get in food or water, or pick up in some other way.

G. and R. In answer to yours of yesterday's date, there is but very little risk of carrying the disease on your person, but we recommend overalls and their frequent washing. A shallow tin of disinfectant to wet the soles of the boots is the greatest precaution. Alas! there are many ways of carrying infection, but constant vigilance is generally rewarded by ultimate success, and if you are "single-handed" you will have no half-done work by over-paid helpers. Yes, the opinoin we hold is that iron in small doses renders the bird an undesirable host to the fungus. The water should be just slightly ferruginous, but exact dosage is not of importance. Yes, we are obliged to charge for letters, as one question raises another, and the correspondence becomes impossible.

A. S. The post-mortem examination of the five weeks old chick showed the cause to be infectious pneumonia, the causative agent of which is the Aspergillus fumigatus, a species of mold. Very little can be done in the treatment of birds already affected, but by fortifying the remainder by tonics, it may be possible to help them resist infection. Dissolve forty grains of the citrate of iron and quinine in each gallon of drinking water, and allow no other. To prevent spread move, if possible, to fresh ground, and turn over and lime the old runs before using them again. Clean up all decaying vegetable matter, bits of wood, sacking, etc., which are the natural habitat of the mold. Thoroughly disinfect the houses by spraying with a five per cent. solution of copper sulphate, and lime wash before use.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

POISONOUS FOODS.

Poisonous foods are a more frequent cause of death among chickens than of adults, but no small number of the latter fall victims to the same thing.

The poultryman will think of the wilful poisoner and the accidental consumption of poisons by the flock, or an occasional member of it when the above title arrests his attention, but we have in mind besides, other and subtler poisons than those accessible to the enraged gardener or malicious neighbour, driven to desperation by cock-crowing in a district where the Noisy Animals Act is not in force. Fowls get poisons in a variety of ways, unsuspected by their owners; but the latter much more often suspect poisoning, and that wilful, when subsequent post-mortem examination proves beyond all doubt that the bird died a natural death or death, that is to say, from one or other of the known diseases.

Among the more common causes of poisoning may be mentioned salt and brine. A recent sample of fish meal analysed was found to have three per cent. of salt, which is very much more than is good for birds, and a sample of meal had 16 per cent. of salt, which it was afterwards ascertained had been added to wheat, which had been soaked in sea water in a leaking ship. Brine, or the water in which hams have been boiled, have many times poisoned both pigs and fowls. Chemical manures, to which birds have access, have been too freely eaten, and caused death or illness, persistent scour being one of the signs in those which do not succumb. Sheep dips, in which arsenic is the most active ingredient, and an alkali, the attraction to fowls, have accounted for not a few. Weed killers take a toll annually, and orchard sprays have killed birds eating the grass below the treated trees, and young chicks have been "done in" by consuming caterpillars and insects that have been destroyed by the sprays. Seed wheat that has been dressed with poisons, and left over, has been fed to birds under the impression that it would be harmless, but has proved quite otherwise. Rat poisons of the old familiar kind account for many poisonings, and it should be better known that the phosphor paste which does not attract rodents so much as we could wish, is not invariably refused by birds, but often kills them, as do the various viruses which are of such uncertain value in the hands of rat catchers. A longer list could easily be made out, but enough has been said to warn fowl-keepers against the more common forms of poisons to birds.

The subtle poisons we cannot guard against under present circumstances are numerous, and do not declare themselves at once, like the more active ones enumerated above. The so-called cumulative poisons have not been successfully extracted and given a formula as definite chemical products derived from pulses and grain grown in widely separate countries, but presumably the same, as judged by their physiological effects. Nor do they occur regularly or in samples taken, or merchants would avoid them. Every now and again, and without means of detection, vetches, beans, and other seeds contain a nerve toxin which does not for quite a considerable time injuriously affect animals. Among these are the so-called Indian pea (Lathyrus Sativus), Soya beans, and others from Upper Egypt, Burmah, and Eastern Asian ports, but the place of origin is not always known. Birds, as well as other animals thrive upon them, indeed they would seem to do especially well for a while, but sooner or later, and quite suddenly, the toxins laid up in the body, poison the nerve centres, and the bird or beast suffers from one or other of the many manifestations of nerve poisoning. It may be that the sufferer suddenly staggers, and is described as "drunk," or one side is helpless, or a fit occurs. Total paralysis, insensibility, with intervals of apparent recovery, and again further and worse attacks, and death may be expected unless the source of the trouble is early detected, and the cause removed by feeding no more of the sample.

The vendors are above suspicion as a rule. They have purchased what they believed to be sound stuff, and had no means of testing it, because of the long time occupied before it takes effect.

How then can we guard against such poisons unless we bar all pulses of Egyptian and Asiatic origin? A guarantee to that effect would be difficult to obtain, but the source in at least one case was proved, and heavy damages obtained against the vendors.

Another class of poison is that popularly known as ptomaine, and from time to time creating much alarm among the general public, but not thought of perhaps in connection with fowls. The word, Botulism, was in everyone's mouth last year when a serious incident occurred in Scotland, but we have always this risk with fowls fed upon meat meals and fish meals. The toxins which gain access to meat and tinned fish appear to do so through some contact of the commonly resident bacteria, known as the flora of the intestines, and constituting a great variety. Fish meal, as most folks know, is largely prepared from the offal of fish, and the trimmings which all can see set aside on the quays of fishing ports for collection, to be subjected to a process in which the interested vendors declare is such as to sterilise any kind of bacteria known to scientists. Yes, the claim is fairly made, *but the waste products or toxins of the bacteria are not destroyed.* They continue active and poisonous, and, in my opinion, account for many deaths in chickens at the age when the need of bone-forming material naturally commends fish meal to the rearer. The behaviour or symptoms described or seen, together with the absence of all lesions beyond those of indigestion, point directly to cumulative poisoning and of the nervous system where no lesions are left. It is, therefore, very difficult to prove. The only possible way is for a known toxic sample to be fed in large proportion to birds set aside for the purpose, and kept under observation. This is how the famous Bristol case was proved. The absence of an essential element in another kind of food was proved in what has come to be known as the polished rice case. To what extent so unnatural a food as fish meal can be fed with advantage, is an open question, in which the scientific feeder and the successful user will have much to say. As an avian pathologist, I am of opinion that it is responsible for many amyloid livers and fatty infiltrations, and that too large a percentage of it often enters into the ration.

THE NORTHERN UTILITY POULTRY SOCIETY LAYING COMPETITION, 1923-24.

EIGHTH REPORT, MAY 15th to JUNE 11th, 1924.

The weather for six days has been fine out of the twenty-eight under review, the fine days being sandwiched between some very cold and cheerless ones, thunderstorms being noted on two days. The month, on the whole, has been suitable for egg production, and most of the leading pens continue to do well.

Broodiness has occurred in a good many pens of the sitting breeds, and quite a few of the non-sitters, too, and one White Leghorn has been broody for the fifth time.

Pullet No. 361, White Wyandotte, has, up to the month end, laid 187 eggs.

The highest collection of eggs was 604 on the 15th May; the lowest 507 on the 7th June. Health normal.

DUCK SECTION.

Splendid returns have been obtained from these competitors, the wet weather, no doubt, being somewhat responsible for this. Major Dugdale's pen of Khaki-Campbells maintained and tightened their hold at the head of the section with a contribution of 132 eggs, raising their total to 847 in the 32 weeks. Three other pens have contributed over 130 eggs, Miss Barr's pen of Khaki-Campbells being the highest scorers for the months with 135.

While a few are now showing signs of broodiness, but continue to lay, all are in good health.

SUMMARY OF LEADING PENS.

Section No. 1: White Leghorns.—No. 1, Jethro Birtwistle 668 pts.; No. 2, Wade and Law, 542 pts.; No. 3, Robert Henry Fryers, 640 pts.

Section No. 2: White Wyandottes.—No. 1, Mrs. M. J. Crookes, 681 pts.; No. 2, James Hodgson, 672 pts.; No. 3, E. J. Stone, 672 pts.

Section 3: Any Other Variety (Non-Sitting).—No. 1, G. B. Metcalfe (B.L.,) 628 pts.; No. 2 P. K. Berry (B.L.), 570 pts.; No. 3. Robert A. Fawsett (B.L.), 540 pts.

Section No. 4.: Any other Variety (Sitting).—No. 1, P. K. Berry, 646 pts.; No. 2, Margerison's (Rishton), (B.O.), 636 pts.; No. 3 ,Walter Dodgeon (R.I.R.), 598 pts.

Section No. 5: Small Breeders.—No. 1, Mrs. A. Stow (W.L.), 694 pts.; No. 2, T. Lindley (W.L.), 659 pts.; No. 3, G. Ware (W.L.), 632 pts.

Section No. 6: Championship (Ten Birds).—No. 1, G. B. Metcalfe (R.I.R.), 1,331 pts.; No. 2, J. A. Rigby (R.I.R.), 1,273 pts.; No. 3, G. B. Metcalfe (B.L.), 1,243 pts.

Section No. 7: Ducks.—No. 1, Major J. C. Dugdale (K.-C.), 847 pts.; No. 2, Miss M. Bagnall (K.-C.), 701 pts.; No. 3, Oscar C. Brown (K.-C.), 695 pts.

CAN SEX IN FARM ANIMALS BE CONTROLLED?

By MORLEY A. JULL,
Macdonald College, Quebec, Canada.

The possibility of controlling sex in the breeding of farm animals would be of immense significance in the livestock industry. Many practical breeders and some scientists have maintained that sex is controllable, since, they claim, the sex of any animal is determined in a large measure by one or more factors subject to the control of man. According to certain of these views, sex is determined by metabolic conditions, a katabolic condition being associated with maleness and an anabolic condition being associated with femaleness. Although some of the evidence offered in support of this view is not based upon convincing data, there still remains sufficient evidence to lead many to believe that the view is completely substantiated. On the other hand, there are many others who believe that sex is determined by a specific mechanism involving the presence of one or more sex chromosomes in the cells which take part in reproduction. This theory maintains that the sexes differ in respect to the number of chromosomes contained in the nuclei of the germ cells, and that sex is definitely established at or before the time of fertilization. This theory further maintains, in the case of all the higher animals at least, that once sex has been established it has become irrevocably determined, and cannot be altered by metabolic or other conditions.

In most of the higher forms of animals it has been shown by cytological evidence that the chromosomal mechanism is stable to a high degree. In horses, cattle, sheep, and swine it is quite apparent that the male is heterozygous and the female homozygous for the sex chromosomes, while in birds the reverse is true. But even where the chromosomal mechanism has been shown to be definitely established there appears to be no theoretical impossibility of modifying the sex ratio. It becomes highly important, therefore, to test the evidence, which alleges that the sex ratio may be modified, and evidence purporting to show that the causes determining sex may be controlled deserves special consideration.

SEX RATIOS.

The term " sex ratio " refers to the proportion of males in a total population of one hundred individuals. The term " sex determination " has reference to the causes which lead to the production of one sex or the other. The term " sex control " is understood to imply that the causes which determine sex are more or less amenable to human control. It is necessary, therefore, to keep clearly in mind the difference between sex determination and sex control.

The sex ratios of the various classes of farm animals as determined up to the present show, in general, an approximate equality of the sexes. The following sex ratios are those which have been determined under normal conditions :—

SEX RATIOS OF FARM ANIMALS AND FOWL.

Animal.	Sex ratio per cent.	Authority.
Horse	51.22	Doncaster.
Cattle	51.21	Wilckens.
Sheep	49.50	Darwin.
Swine	52.84	Wilckens.
Fowl	48.64	Darwin.
Fowl	48.57	Pearl.
Fowl	48.82	Jull.

These ratios are probably good as far as they go, but it must be remembered that in some cases, especially with the larger animals, the numbers on which they are based are not large. Then again, in some cases the determinations have been based upon counts of adults, while, from the standpoint of the actual number of the two sexes produced, there may have been a differential prenatal or postnatal mortality, or both. On the whole, however, the sex ratios as given in the preceding table serve to confirm the observation that the approximate equality of the sexes in the higher forms is one of the outstanding phenomena of life of universal application. In both types of sex inheritance, the heterozygous condition of the sex chromosomes in the males of mammals and in the females of birds, chance combination of the sex chromosomes produces equal numbers of homozygotes and heterozygotes, which fact explains the approximate numerical equality of the sexes. This would suggest that the conditions which are operative in the production of sex are stable to a high degree. Those who postulate that sex is entirely a matter of metabolism and is readily controllable must explain why so many theories of sex control have been without foundation in fact and why so many experiments designed to control sex in the higher forms have failed. They must also explain how it is that despite the fact that so many different kinds of farm live-stock are kept under such diverse conditions throughout all parts of the world the sexes still approximate equality.

The sex ratios given in the table show that where normal conditions prevail the sexes approximate equality. Where conditions depart from the normal, however, the sex ratio may vary considerably. Hybrids between distinct special, or between varieties of one species show conspicuous deviations from equality in respect to the sexes. In practically all cases when abnormal sex proportions appear as the result of hybridization, the excess is of males. Under certain other conditions the proportion of females is far in excess of males. Since the proportion of the sexes fluctuates more or less considerably according to a variety of conditions, some of which, such as prenatal and postnatal mortality, are not directly associated with the mechanism of sex determination, it is necessary to examine the evidence purporting to show that the mechanism of sex determination may be affected and controlled.

A significant case bearing upon the problem of sex determination in animals is that of the freemartin, the importance of the case resulting largely from the fact that the freemartin has been used as an illustration of the change of one sex into another, thus giving rise to modification in the sex ratio. The freemartin, the female in twin calves of opposite sex, is the production of the action of the secretion of hormones of the interstitial cells of the testis of the male twin, the secretions being distributed by means of the fetal vascular anastomosis very shortly after the commencement of sex differentiation in the embryo. The hormones suppress the normal development of the sex characters of the female and produce in her an intersexual condition. Lillie and Bascom have recently pointed out that "in the female of cattle sex differentiation is apparently due to genetic factors exclusively ; in the male the genetic factors are intensified by the production of the hormone." In this case the mechanism of sex determination apparently has not been affected, and sex is still to be definitely associated with the presence or absence of a second sex chromosome.

Reference has been made to the usual preponderance of males over females in cases of crosses between distinct species. A large number of such crosses have been recorded where the hybrid progeny are exclusively males. This occurrence was usually explained on the ground of increased vigour, due to hybridization, the male-producing zygotes alone being able to survive. More recently, however, the high proportion of males in hybridization has been explained on cytological grounds. It has been demonstrated, for instance, that in a mating between a male magpie pigeon and a female dove the hybrids are all males. The maturation process in the hybrids is abnormal, a physiological disturbance giving rise to the omission of one of the maturation divisions, resulting in the production of male offspring only. In such cases sex seems to be determined solely on the basis of the behaviour of the chromosomes, and there is no indication that sex can be controlled.

Results have been determined along certain lines, however, which would seem to show that the sex ratio may not be as stable as once supposed, but that it may vary according to conditions. During the past three years I have determined the sex of all chicks on which it was possible to determine sex from all the eggs laid by 45 hens during their first year of production. The sex ratio based upon annual production has been found to be 48.41 + 0.47, and for the normal hatching season, March and April, 48.82 + 0.80. But it was also found that the first eggs a pullet lays tend to produce a high proportion of males, and that as egg laying increases the male ratio decreases. The results are shown in the following table :—

SEX RATIO OF PULLET EGGS FOR EACH SERIES OF 20 EGGS.

Egg production.	Sex ratio.
0 — 20	62.91 + 1.44
21 — 40	57.46 + 1.88
41 — 60	45.00 + 2.04
61 — 80	44.61 + 0.69
81 —100	37.65 + 1.00
101 —120	32.53 + 1.15

What factors are operative in affecting an alteration in the sex ratio from approximate equality of sexes, which has been found to exist during the normal hatching season? Details cannot be entered into in this brief paper, but it can be said with a considerable degree of assurance that the results cannot be explained on the basis of differential mortality. There is a differential hatching rate of the sexes between the period of early egg production and the period of later production. Apparently the different sex ratios for the different periods of egg production are accounted for by the difference in the absolute numbers of the two sexes produced from one period to another. That is, in the first 20 eggs laid there are more male-producing than female-producing zygotes produced, and as egg laying increases the number of female-producing zygotes increases relatively over the male-producing zygotes.

Since in the domestic fowl the male is homozygous for sex, it does not seem probable that the spermatozoa would influence the situation. It is apparent that increased egg production must bring about certain changes in the eggs so that more and more females are produced as egg laying advances. There was no indication of sex reversal, since a positive check was used to test this possibility. Brown Leghorn males were mated to Barred Plymouth Rock females, and the male progeny were barred and the female progeny were black. All the available evidence points to the conclusion that the different sex ratios occurring in the different periods is due to a differential maturation in the egg. Apparently among the first eggs laid the female-producing chromosome complex is extruded, as a polar body, more frequently than the male-producing complex, and as egg laying continues the male-producing complex tends to be extruded, as a polar body, more frequently than the female-producing complex. This tendency for the extrusion of one kind of chromosome complex in preference to the other at different stages of egg production is probably due to differences in the chemical composition of the eggs in early as compared with late laying. The differences in the chemical composition give rise to different reaction systems within the reproducing cell, but this extremely complex and highly technical problem cannot be discussed here.

It can only be said, in conclusion, that as egg production increases the sex ratio decreases, and if sex is at all controllable it is so only indirectly by controlling egg production. It is quite apparent, therefore, that in the case of the domestic fowl sex determination is closely associated with a specific chromosomal mechanism. At any rate, it is probably true that sex in the domestic fowl cannot be controlled in the sense in which it is usually claimed

It would seem the same with horses, cattle, sheep, and swine, for here also the chromosomal mechanism is undoubtedly of a highly stable character. But in the case of one mammal results have been obtained which show that, under certain conditions, the sex ratio may vary from the normal. In rabbits, where the male is heterozygous for sex, Hays has shown that the sex ratio is affected by the number of times of service on the part of the male, there being a predominance of males in the first service group and then usually an increasing predominance of females as the number of male services is increased. This is shown in the following :—

Ex ratio :—1st Service, 56.33; 5th, 43.50; 10th, 44.44; 15th, 34.64; 20th, 21.87.

Hays has mentioned two possibilities to account for this situation :—

> Either female-producing spermatozoa are produced more largely than male-producing spermatozoa as the amount of service of the male increases or the male-producing sperm are in themselves weaker than the female-producing sperm, and consequently fewer of them survive to take part in fertilization.

On first thought the latter might appear to be the more reasonable explanation, if the female-producing sperm were larger and had a greater chromatin content than the male-producing sperm, thus insuring greater vigour and superior fertilizing capacity. But Lush found no apparent difference in size between male and female-producing spermatozoa in the rabbit. On the other hand, it may be that as the amount of male service is increased the chemical composition of the complex of the germ cell may be so altered as to more readily affect the functioning capacity of the male-producing gamete than the female-producing gamete. If this should be the case, the result would be that as the amount of service increased functionally female-producing gametes would be produced in relatively greater abundance, thus tending to produce more female-producing than male-producing zygotes. While no conclusive explanation can as yet be offered, the one suggested seems more tenable than a post fertilization metabolic interpretation.

It may well be that the cause which determines sex is due to a balance of action within the chromosome group. If those who believe in the metabolic theory of sex determination will accept the idea of a specific chromosomal mechanism, then the metabolic and sex-chromosome theories of sex determination will be brought more into harmony. Variations in the sex ratios from the normal obtaining for the various forms of higher animals, aside from the cases of abnormal chromosome behaviour, can probably be interpreted in terms of alterations in the chemical composition of the cell complex, and this leads to a different kind of balance of action within the chromosome group. Finally it may be said, that, so far as known, there is probably no direct means of controlling sex in farm animals.

NATIONAL POULTRY PARLIAMENT.

PROGRAMME OF MEETINGS

To be held at Salisbury, July 15th to 18th, 1924.

The Sessions of the National Poultry Parliament and National Poultry Council will be held (by courtesy of the Mayor and Corporation) in the Council Chamber, Salisbury.

TUESDAY, JULY 15th.

10 a.m.—Opening Session. Welcome by His Worship the Mayor of Salisbury (Councillor R. Bracher). Introductory Remarks by the President (Mr. Stanley Street-Porter). Report of the National Poultry Council (1923-4) (Mr. Edward Brown, F.L.S., General Secretary). Financial Statement and Balance Sheet, 1923-4. (Mr. A. H. Brownson, Treasurer). Consideration of Report and Balance Sheet.

3 p.m.—Second Session (open to the public). Addresses by Professor R. C. Punnett: "Problems of Heredity in Poultry." Mr. P. A. Francis, M.B.E., Poultry Commissioner: "Some Present Phases of the Poultry Industry."

WEDNESDAY, JULY 16th.

Third Session. 9.30 a.m.—Election of Officers. Nomination for Officials. For Vice-President, Lieut.-Colonel F. W. Hardy, Mr. W. Powell Owen, Mr. Clem Watson, F.Z.S. (Lieut.-Col. Hardy has declined to stand. For Treasurer, Mr. A. H. Brownson. For Auditors (2), Mr. E. Collier, Col. Sandbach. Installation of New Officers. Acknowledgments. Presidential Address (Mr. Tom Newman). Report on the National Poultry Institute and Research Stations. Considerations of Resolutions.

ADJOURNMENT.

7.30 p.m.—Fourth Session. Consideration of Resolutions (continued).

THURSDAY, JULY 17th.

9.30 a.m.—Consideration of Resolutions (continued). Acknowledgments.

1 p.m.—Close of National Poultry Parliament.

FRIDAY, JULY 18th.

Meeting of the National Poultry Council.

Excursions have been arranged on Wednesday, July 16th, to Wilton House and the Poultry Farm of Mrs. Knight, Manor House, Odstock, and on Thursday, July 17th, through part of the New Forest, including Rufus Stone, thence to the Poultry Farm of Mrs. Hunter, Twyford, Winchester. Both Mrs. Knight and Mrs. Hunter generously invite the delegates to tea. If enough visitors desire to go, it is proposed to arrange another excursion to Stonehenge on Friday, July 18th.

RESOLUTIONS FOR THE PARLIAMENT.

The following Resolutions will be submitted for consideration:

I. AMENDMENTS TO CONSTITUTION.

(a) **Submitted by National Poultry Council.**

No alterations are proposed in Articles I, II, III, VIII, IX, X, XI, XII, XIII, XIV, XVI, XVII and XVIII.

Article IV.—Federations.

To add the following paragraph:

" Federations shall consist of Societies, etc., as set forth in Article III (a) within the respective areas, each of which societies shall be eligible for membership of the local Federation on conforming to the rules adopted. The control of such Federations shall be in the hands of representatives appointed by the societies comprising each Federation."

Article V.—Representation on the National Poultry Council.

Paragraph 3 (Specialist Breed Clubs) to read:

" Specialist Breed Clubs affiliated both with the Poultry Club and the National Poultry Council may appoint Six Representatives from the whole body of these affiliated Clubs, and the Poultry Club may be asked to undertake the election."

To add the following paragraphs;

" Co-operative Societies, or Societies of Traders and Distributors, who are members as provided in Article III. (a) and Article XV. (b), covering a County or district, shall each be entitled to appoint one delegate to the Ntaional Poultry Council."

" Patrons of the National Poultry Council shall be entitled to elect one delegate upon it for each 50 (fifty) Patrons, with a maximum representation of Five.'

" That the words 'The British Egg Producers, Ltd., One delegate,' be deleted (provided for in the new paragraph as above)."

Article VI.—National Poultry Parliament.

" That in the second paragraph, after 'Every Society, Club,' the word 'Federation' be inserted before 'or Institution,' and in the table of numbers, after 'For Societies' add the words 'and Federations.' "

" That the fourth paragraph reading 'District Federations shall be eligible to appoint two delegates each,' be deleted."

That the fifth paragraph (as printed) shall read:

" Patrons of the National Poultry Council shall be entitled to elect one delegate, with power of voting, to the National Poultry Parliament for each twenty-five such Patrons, election to be by postal vote to be taken in June each year. Other Patrons shall be eligible to attend and take part in the National Poultry Parliament without power of voting."

Article VII.—Officials.

New paragraph to be added: (In accordance with notice sent in by the Lancashire Utility Poultry Society in 1923, received too late for consideration that year).

" Past Presidents of the National Poultry Council shall be Honorary Vice-Presidents."

Add to paragraph 3 (as printed): " Utility Duck Club," and after the words " shall be Honorary Vice-Presidents," in fourth line, the words " and as such be Members."

Article XV.—Subscriptions.

In paragraph (a) to delete the words:

" In computing the members of General Societies the members of branches shall not be included."

(b) **Representatives of Specialist Breed Clubs (British Minorca Club).**

That paragraph 3 of Section V. of the Constitution be amended to read as follows:

" That the six representatives of the Specialist Breed Clubs on the National Poultry Council be elected by the Specialist Clubs themselves at a specially convened meeting of representatives at one of the big shows."

(c) **Alternative Representation (British Minorca Club).**

" That any Club, Society or Teaching Authority having representation on the National Poultry Council shall have the right to send alternating representatives to any meeting of the National Poultry Council."

II. INSURANCE OF POULTRY-KEEPERS (Scientific Poultry Breeders' Association).

" That the proposals which have been made for mutual insurance on the part of the Hunts and Poultry-keepers within their areas against losses by foxes are commended to those engaged in the Poultry Industry in that (a) such system would not abrogate the right of poultry-keepers to be protected in every possible way against such losses, (b) that Hunts shall contribute towards the cost of such insurance, and (c) that support shall be given to Insurance Companies who are prepared to accept the risks involved and pay satisfactory claims promptly."

(A representative of a leading Insurance Company has promised to attend and explain the proposals made by it for Mutual Insurance.)

III. EXPORT OF POULTRY TO NORTHERN IRELAND (Poultry Club).

" That steps be taken to secure a modification of the present regulations governing the export of birds to Northern Ireland."

IV. RAILWAY COMPENSATION AND RATES.

(a) **Compensation (Poultry Club).**

" That steps be taken to induce the Railway Companies to pay reasonable compensation for loss of, or injury or damage to fowls and eggs. The present maximum of 5s. being ridiculously inadequate."

(b) **Carriage Forward Rates (Lancashire Utility Poultry Society).**

" The Lancashire Utility Poultry Society request the National Poultry Council to take action with a view to obtaining Carriage Forward Rates for Poultry and Poultry Products carried by Passenger Train."

(c) **Return Tickets to Shows (Poultry Club).**

" That the Railway Companies be asked to issue Return Tickets at one fare and a quarter to members of the Poultry Club attending Poultry Shows."

(d) **Conveyance of Birds (Poultry Shows).**

" That the Railway Companies be asked to take steps to expedite the conveyance of birds to and from Shows, and to ensure the more careful handling of such traffic."

V. ADVERTISEMENT CHARGES (Lancashire Utility Poultry Society).

" The Lancashire Utility Poultry Society consider that in view of the selling price of Poultry and Products having reduced to approximately pre-war prices the National Poultry Council should take necessary action with the Poultry Press with a view to a reduction in advertisement charges correspondingly."

VI. CONSUMPTION OF EGGS AND POULTRY (Mr. Bostock Smith).

" That the National Poultry Parliament approve the action of the National Poultry Council in appointing a Sub-Committee to consider the question of and prepare a scheme for a Campaign to increase the Consumption of Eggs and Poultry.

" It supports the proposals that a fund should be raised to meet the expenses that would be incurred by advertising in the Press and issue of Posters, etc., in order to reach the great mass of householders in the country and to increase the consumption of Eggs and Poultry, to which fund producers and traders should be invited to contribute."

Correspondence.

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—I don't wish to waste your time nor space in "Eggs" by prolonging this discussion, but I do wish to clear the matter of the necessity of grit before closing, and I will be as brief as possible.

In your Editorial of May 14th you ask IS GRIT NECESSARY? and you try to make out a case that it is not. In the same issue, page 375, you state that a bird will keep in perfect health and production under conditions where it is impossible to obtain grit other than OYSTER SHELL (surely an admission that this is grit), which is used for shell-forming purposes? From what is the SHELL formed when the birds never see or taste oyster shell all their lives, as many do? You will probably say from limestone grit.

I will take your remarks in rotation, and cheerfully state that I have ALWAYS recognised your long and practical experience as a valuable asset to "Eggs."

As a practical man, being the most impractical in the world, this is a reflection upon yourself.

Dealing with the doing away with green foods, you will readily admit there are GRITS AND grits. Some contain valuable MINERAL content, and others not worth the carriage we pay for them, so if we do away with grits as a body, we shall be doing away with something of great value.

The question of buying foods by their analysis was NOT DIRECTLY quoted, but you stated that grits should be bought upon their analysis, and my timely warning was to impress readers NOT to take it for granted that because the analysis of one sample of grit (or food either for that matter) was good, that ALL grits were up to the same standard, and I quoted the OATS as a case in point.

It is not a case of wasting a couple of hours to try your theory or mine. It is a question of proving my statement that GRIT does help to reduce the food to a much finer consistency, and within a given time than can be got without it.

I fail to see how cattle can be compared with poultry, as cattle do not partake of grit. They derive the mineral properties from the grasses. Again, the latter have teeth, and the birds have not.

If fowls do NOT swallow grit to help mastication, just what do they swallow it for? You may say, like the Ostrich, "out of curiosity."

No, SIR, don't let us elect a sub-committee to make a test. You know these things cannot be proved by a few weeks' experiment upon chicks, and I am not fond of sub-committees of any kind. I always like to deal with the PRINCIPALS.

Finally, there are two things you have not answered. Do you so honestly believe that grit is NOT NECESSARY, that you have deleted it from your poultry MENUS ENTIRELY?

And also, as you state, birds can be kept upon oyster shell in perfect health and production (to which we ALL agree). Will you tell us what oyster shell IS if not a grit?

As regards your suggested test upon day-old chicks up to six weeks old, this would not be of any use, because a chick CAN be reared (or dragged up) without grit, according to the skill or lack of it upon the part of the attendant. BUT to rear them to maturity and produce eggs and reproduce their progeny, is quite another matter. Besides chicks up to this age do not produce eggs, so why make them our objects for the test.

Another point, as they don't lay, they will not require your oyster shell for the formation of the shell.

Yours truly,

A. J. HEINZE.

We are sorry to re-open this discussion, but it is necessary to satisfy Mr. Heinze, who is evidently under the impression that we wish to evade the issue. That is certainly NOT the case. We definitely state that we do not believe that grit is swallowed by the fowl to assist in the mastication of food. Mr. Heinze is familiar with the advice which is always given to supply oyster shell AND flint grit—the first for shell-forming material exclusively, the latter to assist in masticating the food. We say that the flint grit is absolutely and entirely unnecessary.

Let us remind him again that we are not discussing the value of grit for its mineral content, also remind him that if we were, the value could only be estimated by the percentage of it which is soluble.

He appears to think we are hedging, because we advised the use of oyster shell for shell-forming material. Nothing of the kind. It never occurred to us that oyster shell would be used in the mastication of food. Perhaps he will refer back to the issue of June 11th. He will see that we stated that in 1917 for a whole year our birds were given ordinary lime. This was covered with cold water, and dried in the sun, broken up and given to the birds, which remained in perfect health and production, and no other grit of any kind was supplied or was procurable by them. Mr. Heinze only replied to this by saying that the South African Magazine, from which he got the idea, "was very much behind the times." He ignored the point altogether. Just as he did Spallanzani's experiments, quoted in a previous issue, by remarking that it would "probably surprise us to learn that he does not know the gentleman by repute," and then he suggests that "the internal chemical action, or, if we like, the gastric juices of the gizzard play a very important part in breaking down substances, or, in this case, glass balls, which clearly show how important it is to feed foods with a high mineral content." He should not have ignored the point because he didn't know Spallanzani by repute, but should have tried to explain why glass balls were found ground to minute fragments, with all the edges blunted completely as if they had passed through a mill, especially in view of his previous statement that "the inside of the gizzard is covered with a thick wall of protective skin, but it does not contain any essentials for grinding up the food; it simply pulps it, but cannot perform any cutting action so very necessary for correct digestion," and he surely should know that the gastric juices would hardly affect glass. Agreed, it contains no essentials for grinding up the food, but after the food has been softened in the crop, the muscular action is sufficient.

We repeat we have never compared poultry with cattle. We stated that the crop corresponded with the rumen or paunch, and we asked Mr. Heinze to tell us in what respect the rumen or paunch differed from the crop in action. What is the object in saying that cattle derive their mineral properties from the grasses? Do not poultry derive their mineral properties from the grasses and grains and animal food? Surely Mr. Heinze does not think they depend on them from the grit supplied.

Finally, in answer to Mr. Heinze. We never supply grit in any of our poultry menus, but this will not help us, as the birds, being on practically free range, would probably pick up a lot, which was not the case in 1917, when the lime alone was supplied.

We have never looked upon oyster shell as grit. As a matter of fact, we believe that, strictly speaking, it is not, but in order not to evade the point, we wish Mr. Heinze to understand that we do not believe it is any help in the mastication of food.

With regard to a sub-committee. What does Mr. Heinze mean? We never suggested one. We simply offered to pay for the food, the litter, and the chicks if anyone would carry out the experiment. There is no mention of electing a sub-committee, or any committee. May we respectfully suggest that Mr. Heinze reads our notes again. It was surely better that it should be carried out independently, so that there could be no suggestion of bias. The test for day-old chicks was made for the following reasons. In the first place there would be no grit in the gizzard, as would almost certainly be the case with the older birds. Secondly, Kaupp's experiment showed that birds may be kept in perfect health without replenishing the grit in the gizzard for more than a year, and had older birds been used this might have been urged against the argument that grit is not necessary. Thirdly, we thought we were making Mr. Heinze the fairest possible offer. His contention is that the fowl swallows grit to assist in masticating its food, and that grit is necessary "for the cutting action so necessary for correct digestion." We suggested that two lots of chicks should be reared in confined runs, on peat moss litter, one to be supplied with flint grit, and the other with no grit whatever of ANY kind. Of course, they would not be given oyster shell, or even lime. They would depend entirely on the actual food. At six weeks the comparison should be made first by weight, then by comparative health and vigour. If Mr. Heinze is right in his contention then there will be a very great difference at six weeks old. It is unfair to suggest "dragging up," when we have proposed the comparison of weights and health and vigour. A chick "dragged up" would compare most unfavourably with one which was not so. Whatever difference does it make that they do not produce eggs? We are dealing with mastication of food and digestion, and egg production does not affect this. However, the test will be made, thanks to Mr. Richardson, who has offered to undertake it for us, and the results will be published in these columns. If the result is that the chicks without grit compare unfavourably with those which have it, then we shall have to admit that we are wrong. If any others of our readers care to experiment we shall be glad to receive their reports. For the present the discussion must cease.—(Editor).

FAIR TRADE RISK.

To the Editor of "Eggs."

Dear Sir,—In reference to your recent article on "Fair Trade Risks," may I be permitted to bring to your notice a case that quite recently came under my observation of what might fairly be described as an "unfair risk?"

A client of mine, who is a poultry farmer in a moderately large way, purchased a number of pullets from a well-known breeder, who advertises his stock. My client, fortunately for him, has made it a practice to always carefully inspect new arrivals, and to quarantine them before letting them mix with the other birds on the farm. In this particular instance he was not satisfied with the look of these pullets, and sent for me to inspect them.

Every one of these birds were affected with diphtheritic roup to a marked degree, and it should have been impossible for the vendor to have overlooked their condition if he had taken the trouble to have inspected them before dispatch. My client, getting no satisfaction by writing to the seller, very reluctantly put the matter into the hands of his solicitor, with the result that the vendor was compelled to refund the purchase money and all costs. Whether these birds were deliberately sold as diseased, or whether it was a case of gross neglect, it is not possible to say, but the net result to my client would have been the same if he had not taken his own precautions. I venture to bring this case to your notice because there is, and always must be, where any business in eggs or birds is done, a risk of introducing infection into the flock, but this risk can be minimised if both parties play the game, the vendor by selling stock that to the best of his knowledge is free from taint, and the seller by pursuing a system of quarantine, and then making sure that the purchased birds are placed in brooders, houses and runs that are free from infection.

Even when both parties take all reasonable precautions, outbreaks of disease will occur, as who can tell whether the eggs or birds are carriers of the organisms that cause Coccidiosis, B.W.D., and Infectious Pneumonia?

These carriers are in the present state of our knowledge undetectable and unavoidable, and therefore, may be fairly described as fair trade risks.

The poultry world is not alone in this problem of 'carriers," the medical profession also has its solution to find in the case of diphtheria, typhoid fever, and some other diseases.

C. G. SAUNDERS, M.R.C.V.S., &c.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Sir,—In my opinion, if a bird is healthy, and bred from healthy stock, housed and fed properly, there is no need at all for Vaccines and Serums.

Should a bird develop roup or any such disease, surely it is better to kill it at once (even a valuable bird, as in many cases it's progeny would be affected) than try to cure it and waste valuable time and money in inoculating the rest of the flock.

In my flock of 400 laying birds, housed in two semi-intensive houses, 60ft. x 12ft., and fed on Mr. Newman's formulas, with the addition of dried yeast, in which I am a great believer, I have only had one case of roup.

This bird was speedily killed as soon as it showed signs of discharge from the nostrils, and the disease was prevented from spreading.

One thousand or so chicks have been reared this season, and have proved wonderfully healthy and free from leg weakness and other diseases.

I am, yours truly,

H. J. BERRY.

IS THERE A NEW DISEASE?

To the Editor of "Eggs."

Dear Sir,—Perhaps my experience this year will throw some light on this question, as raised by C. B. in your issue of June 25th.

I started incubating in January, and up to the beginning of March raised 1,200 chicks under a Blue Flame Hover, with a loss of under three per cent., when, without any apparent reason, on putting another hatch of 300 under the hover, I began to lose great numbers after the fourth or fifth day, until I had lost

70 per cent. in a fortnight, in a similar manner to "C.B." The next hatch arrived a fortnight later, and the same results. The third arrived the next fortnight, with same results. Meanwhile I had some chicks hatched under hens, and noted the chicks had the same symptoms, but losses not so heavy. Of course, you may imagine during this time I was not taking it coolly. I found, as I thought, I was doing exactly as for the first four hatches, the eggs were from the same hens, same incubators, hovers, houses, and, I thought, the same food in all respects.

Just at this time I read in "Eggs" of a similar case in which the writer traced his troubles to bad wheat, and found I had a fresh supply of cracked wheat just at the time I began to lose my chicks. I tried a fresh lot of wheat, and lost no more chicks.

Now, Sir, during my losses I sent away a number of chicks for post-mortem, and was informed some died through Coccidiosis, some pneumonia, infectious and non-infectious, while one had B.W.D. In the light of experience dearly bought, I say all there was the matter with them was caused by eating bad wheat, and it is in the hope that this will help some poultryman in trouble to write this.

I may say this is my third rearing season with varying success, but full of hope for the future.

I am, dear Sir,
Yours faithfully,
W. BOURNE.

P.S.—When you cease publishing "Eggs" I shall give up keeping poultry.

PEDIGREE.

To the Editor of "Eggs."

Sir,—This question of Pedigree is, as you say, a most important one; with the advent of the cross-bred it becomes more important still.

As an unrepentant breeder of cross-breds, and I hope in future of cross-breds only, I fully think you are entirely right in stating that cross-breeding involves the destruction of Pedigree, and that we, cross-bred breeders, must depend upon maintaining type and fecundity by the use of Pedigree males, generation by generation.

The word, as you say, is too loosely used, and there is too much loose thinking on the subject. We have, unfortunately, no national stud-book, as in the larger stock, for poultry, and must depend upon the records of our breeders.

No one has any right to claim their stock is Pedigree unless it has been pedigreed for several generations back, and a record is available showing how it has been bred. There may well be differences of opinion of how many generations of breeding from selected trap-nest stock should constitute a pedigree, but I would tentatively submit some five, or six would be adequate, to render the resultant stock sufficiently impressive as regards passing on both type and characteristics to their offspring. Colour does not matter, providing we obtain shape and make and inherent fecundity.

Yours faithfully,
T. W. TOOVEY.

Marketing of Poultry.

By A. V. CLARKSON.

Hereunder is set out a few detailed facts regarding the General Produce of a Poultry Farmer, and the connection between that Produce and the London Market, which will enable him to avoid incurring the expense of carriage and commission upon an article, which cannot be disposed of to advantage in London :—

Hens.

Until the cold weather arrives there is no proper demand for old hens killed and clean-plucked, and practically the only buyers are the Jews, who must buy them alive owing to their religion, as their Rabbi has to kill them all. These buyers invariably insist upon a large fat hen, hence the demand for a bird weighing 4 lbs. or over. Of course, there is a slight demand for the light breeds, but they always make a much lower price owing to the fact that they very seldom get really fat, and, in addition, large quantities arrive on the local markets, and are sold as low as 1s. and 1s. 6d. each, at this time of the year. As far as the London Market is concerned the bird is a hen after it has reached its laying stage. The monthly table will guide the sender when they are needed killed and clean-plucked.

Old Cocks.

There is really never a profitable demand on the London Market for cocks which have been in a breeding pen, because they have lost their quality for table. It is always better to sell these birds locally, and save the carriage and commission on them.

Ducks and Duckling.

The only genuine demand on the London Market is for a duckling which is white and weighs 4½ lbs. or over. The various classes of ducks which are in existence for egg production are really useless for table, and it is very seldom that the London Market can realise a profitable return for the sender. Always try and find a local market for this class of bird.

Old ducks and drakes of any sort are best sold locally.

It is not convenient to send duckling to the London Markets alive. They should always be killed and clean-plucked.

New Laid Eggs.

With regard to New Laid Eggs, a London salesman seldom handles these with regularity. The reason for this is that for the bigger part of the year the producer can always get more in his local market, or has no difficulty in finding a genuine retail customer for new laid eggs. In addition to this there is the very vexed question of boxes. The salesman has to sell the eggs in the boxes, and also has to wait for the boxes to be returned from his customer, and the delay is usually irksome to the sender. In view of the above facts, a producer should watch the London Market in conjunction with his local market in order that he may see when London can pay more than he can get at home. This time generally arrives when eggs are scarcest and consequently dearest. Of course, a salesman can always sell eggs providing they are genuine new laid, and it is to the sender's convenience to send to London.

LONDON MARKET ADVICE TABLE, JULY, 1924.

Poultry farmers should now carefully consider the possibilities of a retail demand at a near seaside or health resort, knowing that prices will steadily fall from now until September on London Markets.

SMALL SPRING CHICKEN.—Smallest size required 2 lbs., when killed and clean-plucked. Always allow plenty of ventilation. Kill and clean-pluck and gut them during hot weather.

LARGE SPRING CHICKEN.—3½ lbs. or over. Kill and clean-pluck, and gut them in hot weather.

OLD HENS.—4½ lbs. or over. Send alive.

GENERAL REMARKS.—The salesman will supply you with crates, carriage paid, if you ask him.

In cases where skilled labour is not available, send the birds alive to the salesman, who should kill and pluck them for you at a charge not exceeding 3d. per bird. This method avoids the possibility of the birds turning green during transit in the hot weather.

Never overcrowd live stuff, it is illegal and cruel. If you overcrowd, some birds may be dead on arrival, and the loss is yours entirely.

Never despatch poultry to market killed, but with the feathers left on.

DUCKS.—4½ lbs. or over. Must be killed and clean-plucked, but do not gut them.

GENERAL REMARKS.—Coloured or Runner Ducks under 4½ lbs. are not wanted on the London Markets.

RABBITS.—No demand until September.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Ormerod, Miss A., The Paddock, Poynton, Cheshire.
Hackett, J. W., 7, Worcester Street, Barrow-in-Furness.
Potter, Wm. (Junr.), Park View Farm, Newbold Stour, Stratford-on-Avon.
Skelsey, Leonard, Oake Dene, Wallis Wood, Ockley, Surrey.
Water, W., "California," Santon, Isle of Man.
Forsyth, Miss A., Poulner P. Farm, Ringwood, Hants.
Halliday, Miss M., Orchard House Poultry Farm, Huby, Nr. Leeds.
Nicholson, R. W., Garden Cottage, Clarence Road, Four Oaks, Birmingham.
Sims, E. G., Orchard Poultry Farm, Hook Road, Surbiton, Surrey.
Barton, R. C., Glendalough House, Annamoe, Co. Wicklow.
Coghlan, Stanley, Aldborough, Norwich, Norfolk.
Woodgate, Mrs. E., The Gardens, Great Tew, Enstona, Oxon.
Duffield, E., Ivy Cottage, West Morton, Nr. Bingley.
Oxley, Donald, "Springfield," Birds Edge, Nr. Huddersfield.
Bouillet, Mons. S., Elevage de la Croix Blanche, 37, Avenue Hortense—Fobbert, Sartrouville (S.A.O.), France.

THE PROPOSED SCOTTISH LAYING COMPETITION AT HOGHALL, near LOANHEAD, MIDLOTHIAN.

We are very interested to learn, as we are sure our readers will be also, that the above proposed Laying Competition is to take concrete form very shortly. The Scottish Board of Agriculture have approved the scheme, and have prepared the plans for the erection of 100 up-to-date laying houses, with 100 wire runs.

The buildings and erection of the entire plant has been placed in the hands of Mr. Robert Miller, of Denny.

FIFTH MIDLAND LAYING TEST.

EIGHTH MONTH—224 DAYS (JUNE 15th)—THREE LEADING PENS IN EACH SECTION.

C. H. Hudson (W.L.), 492 eggs; C. Thompson (W.L.), 532 eggs; H. Boxall (W.L.), 487 eggs.

H. D. Gee (W.W.), 738 eggs; Fowler Bros. (W.W.), 713 eggs; S. & T. Greenall (W.W.), 546 eggs.

Major Kingscote (R.I.R.), 501 eggs; Easton Poultry Farm (R.I.R.), 515 eggs; Miss M. Greham (R.I.R.), 510 eggs.

Fred Gardner (L.S.), 504 eggs; F. B. Welch (L.S.), 451 eggs; Mr. and Mrs. Jacobs (L.S.), 408 eggs.

H. H. Brady (Anconas), 489 eggs; G. C. Woodbridge (Anconas), 392 eggs; Blaksley & Blythe (Blk. Leghorns), 386 eggs.

H. Thomas (Buff Orps.), 445 eggs; W. Hamnett (Buff Rocks), 377 eggs; Major Shewell (Barnevelders), 380 eggs.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 4th JULY, 1924.

GRAIN AND FEEDING STUFFS.—There are only a few odd lots of home-grown grain on the market, and these changed hands at fully recent prices. Most kinds of imported wheat, barley and oats are dearer on the week, with a fair demand reported generally. No. 1 Manitoba wheat averages 54s. 3d. per quarter, against 53s. 6d. last week; Karachi barley averages 34s. 6d. per quarter, against 33s. 9d.; and No. 2 Canada Western oats 26s. 6d. per quarter against 26s. 3d. Argentine maize shows a further slight fall on spot, but later shipments are reported to be attracting more attention, and prices have hardened.

British offals are dearer, bran averaging nearly £6 10s. per ton against about £6 5s. last week, and middlings about £9 per ton against £8 15s. Linseed cakes are decidedly dearer for both spot and forward delivery, a general advance of 5s. per ton for prompt delivery being reported. Any other changes in prices for oilcakes are also against buyers.

MILLERS' OFFALS.—Bran (British): Bristol, £7 5s.; Hull, £5 17s.; Liverpool, £6; London, £6 10s. Broad Bran: Hull, £6 17s.; London, £7 5s. Middlings:—Fine (Imported): London, £9 12s.; Coarse (British): Bristol, £9 12s.; Hull, £9; Liverpool, £8 5s.; London, £9. Pollards (Imported): Bristol, £8 2s.; Hull, £7; Liverpool, £6 17s. Rice Bran: Bristol, £7 12s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 15s.; London, £10 15s. Maize Meal: Bristol, £10; Hull, £9 3s.; Liverpool, £9 15s.; London, £11. Maize Germ Meal: Bristol, £10; Hull, £9; London, £8 12s. Maize Gluten Feed: Bristol, £10 5s.; London, £8 15s.

EGGS AND DEAD POULTRY.

There is a fairly good demand for eggs, and British and Irish make 6d. to 1s. per 120 more money than last week, while imported varieties are also dearer. Dead poultry meets with only a moderate demand, but fowls sell at fully late rates.

Week-end Prices—Eggs (per 120): British: 15s. 9d., 14s. 9d.; Irish: 15s., 14s. 3d.; Danish: 17s., 14s.; Dutch: 18s., 15s. 9d.; Russian: 9s. 8d., 8s. 9d.; Belgian: 15s. 6d., 14s. 6d.; Chinese: 10s. 6d., 8s. 6d.; Lithuanian: 13s., 11s. 6d.

Dead Poultry (per lb.): Fowls—Surrey: 2s. 6d., 1s. 10d.; Irish: 1s. 9d., 1s. 6d.; Others: 2s. 2d., 1s. 6d. Ducks: 1s. 9d., 1s. 3d. Geese: 1s. 1d., 10d.

EGGS.

Per Doz.—Ashford: First, 1s. 10d.; Second, 1s. 7½d. Birmingham: First, 1s. 5½d.; Second: 1s. 4¾d. Bridgwater: First, 1s. 7½d. Carlisle: First, 1s. 7d. Chelmsford: First, 1s. 7¼d.; Second, 1s. 6d. Denbigh: First, 1s. 8d.; Second, 1s. 6d. Derby: First, 1s. 4½d. Dorchester: First, 1s. 7d. Exeter: First, 1s. 6d. Hereford: First, 1s. 4d.; Second, 1s. 3d. Hull: First, 1s. 5d. Ipswich: First, 2s. 0d.; Second, 1s. 8d. King's Lynn: First, 1s. 7d.; Second, 1s. 5d. Lincoln: First, 1s. 6d. Llandilo: First, 1s. 3d. Newport (Mon.): First, 1s. 6d.; Second, 1s. 4d. Norwich: First, 1s. 8d. Oswestry: First, 1s. 6d. Penzance: First, 1s. 4d.; Second, 1s. 3d. Salisbury: First, 1s. 7½d.; Second, 1s. 6½d. Shrewsbury: First, 1s. 6d.; Second, 1s. 5d. Skipton: First, 1s. 1d. Truro: First, 1s. 4d.; Second, 1s. 3d. York: First, 1s. 7d.; Second, 1s. 6d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 9d. Derby: First, *6s. 0d.; Second, *3s. 6d. Exeter: First, 1s. 9d. Hereford: First, 1s. 6d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 0d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 1s. 4d. Derby: First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d. Llandilo: First, 2s. 0d.; Second, 1s. 8d.

*Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, July 16th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

CANNIBALISM.

In an article in the "Canadian Poultry Review," Mr. W. Hicks complains that none of our scientists have hitherto furnished us with a solution of the very annoying habit of cannibalism amongst birds and animals. He has made careful and exhaustive study of all available data, scientific and practical, and has found that chicks from different parent stock, fed and managed under identical conditions, one lot may develop cannibalism and the other not; that when one lot of chicks are free from it on a given ration, other lots on the same ration and system from the same parent stock will also be free from it. That is we do not obtain cannibalism and absence of cannibalism when chicks of the same period are obtained from the same parent stock and fed and managed in the same way.

This Mr. Hicks has come to the conclusion indicates that cannabilsm is a heritage, or rather lack of heritage—some substance is missing which the parents failed to bequeath in sufficient quantity to the body of the infant; something that chicks run out of and crave for during growth.

"Why," asks Mr. Hicks, "do chicks suddenly go after blood in particular?" Why not for wood, water, and other things, why only blood? and then he tells us we must examine the chemical constituents of blood for some outstanding factor, having done so he has found the missing substance to be "iron," to the absence of which he, in a most exhaustive article, traces cannibalism.

With all deference to Mr. Hicks, we are afraid there are some objections to his theory. It is possible that outbreaks of cannibalism may in a few cases be due to some deficiency in the diet. We have heard this and other outbreaks, such as egg-eating, toe-picking, feather plucking, etc., attributed to various deficiencies in the diet in the course of the last few years. To lack of vitamins A, B, and C, for example; to a deficiency of common salt, but this "deficiency" theory is being ridden rather hard in respect to poultry and problems connected with them, and we have to realise that it is wise to look for the simple rather than the complex solution, and that a vicious habit is easily contracted and capable in most cases of a simple explanation.

The cause of toe-picking is known. It is more prevalent, much more, in bright sunny springs than in dull cloudy ones. During the past two seasons complaints have been comparatively few. In the bright hot spring of 1921 they arrived by every post. It is far more prevalent with yellow-legged breeds than with others, and when an outbreak does occur with other varieties, it can generally be traced to an accident. Blue washing the brooder house will prevent, and usually stop an outbreak. The explanation is found in the chicks' habit of pecking at anything bright—the suns' rays on the yellow legs, the pecking at the bright yellow, blood drawn, and the mischief started, if not checked, will speedily develop into cannibalism. It is not a craving for iron or for blood. We may say they have found the raw blood palatable, and the taste has excited an appetite which they will satisfy.

We cannot agree that chicks "run after blood in particular, and not after wood, water and other things." We have known them run after bright wire nails to such an extent that scores of them were lost on one farm where a new brooder house was constructed, and a quantity of inch nails carelessly left on the floor, and although we cannot definitely say they were not after the iron, they *did* ignore the rusty ones.

We have known a few outbreaks of cannibalism. In every case they have been traced to a cause which was not attributable to lack of iron. The first occurred with a flock of Black Leghorns, and was due to a pullet bleeding from the vent. She was torn to pieces. If the owner had but removed her from the pen the outbreak would never have occurred. The second and third outbreaks were due to pullets suffering from prolapsus of the oviduct. Both these outbreaks occurred in June, and amongst flocks which had range over two or more acres of grass land. The last outbreak occurred amongst White Leghorn pullets on a commercial egg farm, and was due to a pullet tearing a wattle in some wire. In two of these cases the outbreak was checked by glutting the pullets on raw bullocks' lights.

In support of his theory, Mr. Hicks suggests that the reason why chicks hatch so much better in the latter half of the spring, is that the parents have plenty of green food, and the poor hatching in the early spring and fall, is due to the lack of it, but he does not explain to us why the chick hatched in the early spring possesses greater vitality than that hatched in the late, or why it develops so much more rapidly, why the chick hatched in May and June from hens which have the advantage of the spring vegetation, should be less vigorous than that hatched in March.

Mr. Hicks makes a very extraordinary statement. He says that "one poultryman wrote to him and stated that cannibalism which had been wiping out his flocks at the rate of HUNDREDS OF ADULT BIRDS PER DAY, stopped completely within five days after he had changed to a better ration." Now we do not dispute this statement, because we once had a man who wrote to us and said his hens were not laying. We suggested a slight alteration in the mash, and four days later got a letter saying: "You must be a wizard, the hens began laying next day." One naturally wonders how many hundreds of adult birds there were to feast on these "hundreds of adult birds." But that is not the point. The point is that they stopped entirely after five days on the new ration. Would it not be more reasonable to assume that after such a gorge as this, the birds' appetites had been satiated, just as a greedy boy's would be if he was let loose in a pastry-cook's-shop. That is what we believe occurred when we checked the outbreak of cannibalism with raw bullock's lights. The appetite had, in the first case, been excited by the bleeding from the vent and the prolapsus and the taste of blood. It was satiated by the raw lights.

Mr. Hicks says: "Shortage of food-iron in rations, or shortage of its 'availability' for blood formation from various causes, and consequent cannibalism is much more common all over America than is generally known." It is impossible, of course, to comment on this in reference to America, but we can say with confidence that it is not the case in this country, and will not be well, we feed such a high proportion of millers' offals in the mash. It is a little surprising that where so much alfalfa meal is fed, as in America, that there should be any deficiency of iron in the ration. The value of iron we thoroughly appreciate. The experiment of Bunge has been quoted in these columns on more than one occasion, but it may not be out of place to repeat it. It was made with rats, which were fed on white and bran bread. Those fed on white bread weighed at the conclusion of the experiment 4.81 grams, those fed on bran bread 20.76 grams, so that we can see how the iron and other constituents in the outer layer of the wheat berry were utilised.

Modern Poultry Feeding.

By TOM NEWMAN.

MODERN POULTRY FEEDING.

LEG-WEAKNESS AGAIN.

I have received the following letter from Mr. H. R. Brown:—

> "Dear Sir, Your comments on intensive rearing in the issue of June 11th is my excuse for troubling you with my old friend, Leg-Weakness.
>
> This year we have reared two batches of 400 chicks to six weeks before letting them out of the brooder houses. We have had no cases of leg-weakness at all. Your mash was fed. Green food clover was supplied, as required, and also fresh soil. The latter was supplied because the chicks eat it, and as they eat it, I presume, they must require it for some useful purpose. Your wire platform was under the hovers.
>
> You will see that all was done to combat leg-weakness, as far as our present knowledge goes, and yet I think we would have had cases had it not been for one other thing—direct sunlight.
>
> As you know, sir, rickets is often present in babies, even when breast fed—no shortage of vitamin A. and whole milk will not cure rickets. Cod liver oil, after it has been boiled to destroy the vitamin A., will cure rickets in babies. Egg yolk has also been found to contain the same substance. So far these are the only two foodstuffs which have been found to contain "something" that will cause the normal deposit of lime salts. We have other things and cheaper.
>
> SUNLIGHT. We do get some of this even in spring in England. The important point is the rays must be direct and unobstructed by glass. Hess placed two lots of rats in boxes, and fed them on a rickets-producing diet. One box had a glass top, and the other no top at all. **The rats in the box with the glass top** developed rickets. Both boxes were placed in the sun each day.
>
> The moral of all this, I think, is, don't make brooder houses for intensive or winter rearing like the box with the glass top. Most of our brooder houses are so constructed that it is impossible for the sun's rays to penetrate except through glass, and, as you have said on previous occasions, "Leg-weakness is more prevalent in wet and cold springs when the chicks are confined to the brooder houses for long spells." You are right, sir, and my conclusion is that we have made most of our brooder houses like the house with glass top.
>
> Our late adviser, Mr. Oscar Smart, had a small ray of light in the darkness, for, when writing of his continuous hatching scheme in "Eggs" some years ago, said of the difficulty of rearing late and winter hatched chicks, that it "was probably due to the absence of 'Blue light' in the atmosphere that is so plentiful in the spring." His suggestion to produce more of this blue light was to put a special kind of glass in the brooders. We now know the blue light to be the ultra violet rays. The amount present in the atmosphere is now quoted in the "Times." We could produce it in our brooders by means of special electric lamps, if necessary. So you see, sir, even in those days "Eggs" was groping towards what I think is the real and final solution of leg-weakness."

We are certainly accumulating evidence that leg-weakness, except in rare cases, is a brooder trouble, and it not due to dietetic deficiencies. Mr. Brown deduces from the experiment by Hess, which he quotes, that in one case rickets was prevented by the direct rays of the sun, and in the other it was caused by their absence. We all know the value of sunshine, and if we made fuller use of our knowledge there would undoubtedly be less disease to worry about, but in regard to the above experiment, it seems to me it was a pity not to have carried it a little further. What was the atmosphere in the box with the glass top, as compared with that without it. A vitiated atmosphere we should expect to cause rickets, and is there not a possibility that this was so in the case of the box with the glass top? I am thinking that the cause of leg-weakness is due more to the atmosphere under the brooder than to the absence of ultra-violet rays. A case has come to my notice where 40 chicks were reared under hens in a brooder house without a single case of leg-weakness occurring, while under a hover in the same house, the losses in a brood of 80 from leg-weakness were very heavy, in spite of the fact that fresh earth was brought in every day. All the chicks were hatched in the same incubator and from the same pen, and fed exactly alike.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale.

(*Continued.*)

GROUP VI.

The object was here to determine the B vitamin values of Marmite and Cerema. White rice and dried skim milk were taken as food. Cod liver oil was added to supply A vitamin. C vitamin was not given as the question of the need of C vitamin was to be studied at the same time. B vitamin was added as Marmite or Cerema. It was seen from Group IV. that 0,25 g. was not enough.

Chick and Hume had found that pigeons wanted 1 g. marmite per 45 g. rice, and, consequently, 1 g. of each preparation was used per 30 g. rice.

Two lots of 10 day-old chicks, Light Sussex crossed with Wyandottes, were used. The diets were:—

M. Lot.

White Rice: 30 g.
Dried Skim Milk: 30 g., later 10 g.
Cod Liver Oil: 0,5 cc. per bird per day.
Marmite: 1 g. per 30 g. rice.

C. Lot.

White Rice: 30 g.
Dried Skim Milk: 30 g., later 10 g.
0,5 cc. per bird per day.
Cerema: 1 g. per 30 g. rice.

The reduction of the amount of dried skim milk was to lessen the cost of feeding.

In the thirteenth week slight signs of leg-weakness were seen in both lots.

Marmite was then raised to 1,25 g., and Cerema to 1,5 g. per 30 g. rice, the greater quantity of Cerema being added, as these birds seemed slightly worse. In the 20th week the Cerema was again raised, as the birds had some leg weakness, to 1,68 g. per 30 g. rice. This figure was chosen from the nitrogen content of Marmite and Cerema, and corresponded to equality. No further signs of leg-weakness were noticed.

In the 21st week it was necessary to remove the surplus cocks, and in the 24th week a single group with all the hens (seven) was made, with one cock, to study the question of C vitamin requirements. (See later).

The hens of both groups started laying at practically the same date. The tables show the food consumption and average weekly weights.

Two losses have to be recorded. Both belonged to the Cerema lot. One died on the ninth day with no visible cause on post-mortem examination. The other was found paralysed in one leg at the end of the ninth week, and was chloroformed. Post-mortem examination indicated that the paralysis was due to pressure of a fibrous ovary on a nerve. Neither loss can be attributed fairly to lack of B vitamin. These troubles probably arise from the use of such small quantities. McCarrison's work shows that symptoms arising from too little vitamin in the food are most frequently connected with derangement in the internal organs.

The result is to show that 1,68 g. of Cerema is the equivalent of 1,25 g. Marmite on the diet of 2/3 rice and 1/3 dried skim milk.

GROUP VII.

A comparison of Cerema and Dried Yeast was the next object.

The same diet as that of Group VI. was used, namely:—

White Rice: 30 g.
Dried Skim Milk: 10 g.
Cod Liver Oil: 0,5 cc. per bird per day.
Cerema or Dried Yeast: 2 g. per 30 g. rice.

The quantity of Cerema was taken as 2 g., as 1.68 had beeen found just sufficient in Group VI. C vitamin was omitted. (See later).

Two lots of 10 day-old Light Sussex chicks were used. The experiment was started on December 22, 1922. One lot was given the Cerema, the other Dried Yeast.

In the third week the birds of the dried yeast lot showed distinct signs of leg-weakness, with ruffled feathers and drooping wings.

The dried yeast was, therefore, doubled in amount

In the 15th week the birds of the Cerema lot showed some leg-weakness, and the Cerema was raised to 2,25 g. per 30 g. rice.

After these increases all the symptoms disappeared, and the birds reached maturity.

Three birds out of twenty were lost. One bird of the Cerema lot died on the second day. Another bird of this lot dislocated its leg, and was chloroformed. The 3rd belonged to the dried yeast lot, and was found dead in the seventh week, apparently crushed by the others, whilst it was weak from insufficient dried yeast. Excluding the accidental loss, 90 per cent. of each lot was raised to maturity. Two lots contained the same number of cocks and hens, so that their average weights can be properly compared. Scarcely any difference was noticed, as shown in the tables.

It is of interest to compare the weights of these birds with those of Group VI. Group VI. was started in June, Group VII. in December. The figures do not bear out the common beliefs of poultry-keepers that the growth is different in the summer and winter

The result shows that 4 g. of dried yeast are equal to 2.25 g. of Cerema per 30 g. of rice.

(*To be Continued.*)

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

EGGS BY WEIGHT.

I have received the following letter from Mr. S. F. Cooper. I think some of the difficulties he makes, if he will pardon my saying so, are a little exaggerated. A poultry farmer would not worry about the local landlady.

Selling by weight might also enable us to put up a better fight against foreign competition. Reference is repeatedly made to the fact that Danish and Dutch eggs realise a higher price than the Home product, but this is only the case with their first-grade eggs, and if eggs were sold by weight it might solve the problem of grading and encourage egg merchants, who at present will not handle the British new-laid egg, to give it their attention.

One of the greatest problems are the Auction Markets. In these markets the producer, not infrequently, fails to get top price because of the habit of many auctioneers of bulking several lots of eggs so that only the large buyers are able to bid, and this limits the competition and encourages the "rings" which are now to be found in most markets, to the great detriment of the poor producer.

However, this subject as to whether eggs shall be sold by weight is of some importance, so I hope more of my readers will take part in the discussion :—

"Dear Sir,—You ask, in current issue, for views regarding the 'selling-by-weight' question. I was talking to a certain confectioner just recently who buys hundreds of our eggs. In the course of conversation, he said 'Eggs ought to be sold by weight.' Just a statement, but it gave me seriously to think. Would there be any advantage? In private sales now an egg is worth 2d., and one gets 2d. whatever the size, but what a splendid chance for the super-layers, such as Black Leghorns, if those 4 or 6 oz. eggs were put on the scales and sold at 1d. per oz., and what a fine thing to get rid of these small egg-laying Wyandottes.

But, who controls the egg prices to-day? I think the auctioneer and market owners. What would these nasty but necessary people have to say were eggs to be weighed as they were brought in? I am afraid it would be impracticable, as, instead of just dumping the eggs into pots, etc., the market owners would have to have hundreds of pairs of scales, fiddling things, but necessary to prevent queues of people from early morn to dewy night waiting to use the only spring balance on the place. And how about the poor poultry farmer (quite by the way) who has only a balance weighing in pounds, when asked for 'one egg, please' by the local landlady?

Seriously, I know people will say that eggs can be bought in the market by bulk, as at present greenstuff, etc., is, and still sold in the shops by weight. But, unfortunately, this would do little good, as quite the great majority of eggs to-day are sold in the market, and it is my experience that in this district the 'market' pays better prices than the cafes and hotels, an enigma but a fact.

Wishing you and your valued paper all the best."

Yours faithfully,
SYDNEY F. COOPER.

A LONG SEQUENCE.

In last week's issue I mentioned the record of the White Leghorn hen owned by the Rev. L. Green-Wilkinson, which laid 103 eggs in 103 consecutive days.

This has been easily beaten in the Wilts County Laying Trials by a R.I. Red pullet, owned by Mr. Guy Adams, which has laid the phenomenal number of 268 eggs in 265 days, commencing on the first day of test (October 14th).

The following is a copy of a letter from Mr. Arthur Ellis, who is managing the Test on behalf of the Wilts County Council. The original was sent me by Mr. Adams :—

Wilts County Council,
County Laying Grounds,
July 4th, 1924.

"Dear Sir,—Reference to your letter of this morning's date. Your hen, No. 107, Rhode Island Red, has laid up to, and including, to-day 268 first-grade eggs in 265 days. The test commenced on October 14th, 1923. (Prior to the test the bird laid 13 eggs, but this, of course, is non-official.")

(Signed) ARTHUR ELLIS (Manager).

THE MARKETING OF TABLE POULTRY.

May I refer our members to the valuable articles on the Marketing of Table Poultry, which are specially contributed by Mr. A. V. Clarkson.

Mr. Clarkson writes from very long practical experience, and the information contained in these articles should be of extreme value to those who are interested in this question—I might almost say, problem.

If Mr. Clarkson's advice is carefully followed there will be fewer disappointments by those who send poultry to the London markets.

"Eggs," as usual, is the first poultry paper to secure articles by one who can write authoritatively on this subject.

The marketing problem has been a very big one for years, and much disappointment has been due to the fact that producers have not taken the trouble to thoroughly acquaint themselves with the conditions. If they will follow Mr. Clarkson's advice to the full, I am sure they will be much better satisfied in future.

FREAKS.

I must confess I am not fond of freaks. We do not want the columns of "Eggs" filled up with records of three-headed chicken, etc.

This morning two arrived together. Miss Robertson sent me a newly-hatched chick with four perfect legs. The chick did not survive, in fact it had not drawn the yolk into the abdomen, and it seemed to be prematurely hatched. All the legs were well developed, not as is sometimes the case, two being rudimentary. Then Mr. Jagoe sent me, what he described as an "appendage," which was only slightly adhering behind a newly-hatched duckling. He severed it, and the duckling is otherwise apparently quite normal, and doing well. The appendage consisted of just the skin of the posteria and two perfect legs.

I have seen chicks with two heads, with three beaks, and four wings, two of which were rudimentary, but must confess that my interest in these things is small, and I do not want to start a museum.

EDITORIAL NOTE.

A CORRECTION.

Major Hayland Wilson has asked us to correct a mistake which appeared in the advertisement on the front cover of our issue of May 14th, in which it was stated that the flock average of 250 hens and pullets was raised from 162 to 205.56 first-grade eggs.

No doubt such a statement made our readers gasp.

Major Wilson writes to say this was certainly unintentional, and that the average 205.56 applied to the pullet flock only. Also, that the 205.56 was "all in." First-grade eggs averaged only 197.47, and that only on 1⅞oz. basis.

Utility Duck Club Notes.

By HUGH B. CARRINGTON

In my last monthly notes it was mentioned that a meeting of the Council had recently been held, but that the business under discussion had not yet come to fruition, and that a full report could not therefore be made. The business in question was whether or not it would be possible to continue the National Duck Test for 1924-25 at Bentley. At one time it appeared most doubtful, but I am very pleased indeed to be able to announce that by the time the next meeting of the Council was held on June 11th all difficulties had been overcome. Better even than the fact that the Duck Test will continue at Bentley is the news that it will be held under Miss A. E. Barr's extraordinarily able management, and under Mr. J. N. Leigh's supervision. The actual site of the test is on part of the ground recently purchased by Miss Barr from the L. and N. E. Rly. Co.

The duck industry already owes a very big debt to Miss Barr. If duck owners knew how much more she is now going to do for them, I fancy they would admit themselves to be hopelessly insolvent for lack of adequate means to repay her. And now, if he will permit me, it is Mr. Leigh's turn. Of one thing I am pretty certain, had it not been for him it is most unlikely that Bentley would have been the scene of the next test. His energy and persistence in striving to attain this object have been wonderful; having accomplished it, he has now undertaken to supervise the Test itself. Only those familiar with the work it entails will realise how valuable his offer is.

Lastly, for the opportunity is too good to be missed. A word of very hearty thanks is due to all who have helped to make previous tests a success—the London and North-Eastern Railway Company, the "Daily Mail," the Poultry and other press. It is hoped that the industry will long receive similar support. Founded as it is on a solid basis of real commercial worth it cannot fail to succeed with the powerful help which has been extended to it from many directions.

Details of the test, which, as before, is run by the U.D.C. and the N.U.P.S., will be published in due course, but it may be as well to say in advance that it will probably begin on November 1st.

Some time ago, at Bentley, I had the privilege of meeting the American and Canadian delegates who had come over for the Poultry Conference at Barcelona; also Mr. Merritt, of New Zealand. The visit had been arranged by Mr. P. A. Francis, who, with Mr. Brickwell for the L. and N. E. Rly., and Mr. J. N. Leigh, as manager of the National Laying Test, had organised the day, including the weather, to perfection.

Several of the delegates were very much interested in the duck section, and those who had had no previous experience of these birds' wonderful performances, nor hitherto seen any arrangements for individually recording them, were, I think, not a little surprised with what they saw at Bentley. It is to be hoped that when they receive the literature on ducks, which several of them asked to have sent out to their homes, it may stimulate interest about ducks in regions where, up till now, they have been more or less unknown.

Incidentally I learnt that in New Zealand more duck-laying records are being broken, and I shall hope to be able to publish some interesting facts about New Zealand at a later date. The interchange of stock and information between the various countries where ducks are now being scientifically studied, will, it is quite certain, be most helpful to all concerned.

To pass to other matters which more immediately touch the interests of the club at the present moment. From several letters recently to hand, it appears that there is a little misunderstanding about who is or is not eligible to become a member of the U.D.C. Some people seem to think that membership is confined solely to big duck-keepers. This is an entirely erroneous idea; the small duck-keeper and the beginner with ducks are particularly welcome, for the policy of the U.D.C. is to do its best to help all duck-keepers, especially those who, with a little advice or information put at their disposal, may easily be successful when otherwise disaster might overtake them.

I hope any who have held back for the above reason will not fail to write to me. They may be sure of a ready welcome and of receiving help when needed in any difficulties which may be experienced in the management of their birds.

For various unavoidable causes it was impossible for me to send in my notes as usual for June, but what might have been said then still remains seasonable.

Those who hatched very early—say at the beginning of February—will probably have their young ducks already in lay by the time these notes appear. The majority, however, do not hatch till the end of March, throughout April, and possibly May. To those who were incubating under hens it was an exceptionally late season on account of the difficulty in getting broodies, while the very severe weather had a bad effect on fertility and made the number of early incubator-hatched ducklings less than usual. There is plenty of time, therefore, to talk about the treatment of the young birds before they come on to lay.

The most important point, to my mind, is to allow the young stock to live as naturally as possible, from about the age of ten weeks upwards. On my own farm, as soon as I judge the ducklings to be strong enough to look after themselves, they are left out at night without any shelter whatsoever. Usually at this stage they are put on to ponds, and, except for a visit every morning and evening, when feeding time comes round, they are never interfered with in any way. If there are any weaklings this treatment soon finds them out, and the quicker they succumb the better. It may sound cruel, but it is nature's way and nature is not prone to make mistakes. The law of the survival of the fittest should not be interfered with if strong healthy stock is wanted. Should there be a casualty, and such a thing is rare, I shed no tears over it—rather the contrary, for it has saved the trouble of rearing a worthless bird.

If duck-keeping is to be really interesting, it is as well, before sending the youngsters out of the nursery, to ring them for identification throughout their lives. Here they are sorted according to their toe punches. If these show signs of healing up they are re-opened, a numbered embossed aluminium ring affixed to the leg and a record taken down of the bird's breeding. This is a job which is best tackled by two people; it can be done single-handed, but is rather tedious work, and bad for the ducks as well as the worker.

There is nothing further to worry about till the birds are nearing the laying stage. With precocious Runners this may be soon after they are four months old, though the average will be nearer five months, and with Khakis, somewhat later. My experience does not cover any other breeds, but I imagine that, as with chickens, the heavy breeds take longer to mature than the light. About two or three weeks before the birds may reasonably be expected to start laying, they should be brought up to their new quarters and accustomed to the conditions under which the remainder of their lives will be spent. With my own ducks it means that they will never see a pond again, except perhaps in their dreams.

Here I must say a word about Trap-nesting. It is to be hoped that many more duck-keepers will practise this in the coming season. Not only is it the greatest possible help in the selection of the breeding stock, but there is no comparison between the interest it is possible to take in a trap-nested flock as opposed to a similar number of unrecorded birds. It is a subject upon which so much might be written, that I positively dare not pursue the subject further. If there are any non-members of the club who read these lines, I can only suggest that they write me for information. Several articles and leaflets have been published by the U.D.C. on the subject of a very instructive nature, and to those who have not trap-nested before I think they would prove most valuable.

The only remaining subject which can be touched upon is the moult. Letters are just beginning to arrive asking for advice about it, which I really find a little puzzling to answer. Once more I am inclined to say that nature should be left to herself. It has been a very remarkable laying season, many ducks have been laying "possibles" or nearly "possibles" for months on end, and under the circumstances a good rest from egg laying cannot be grudged them. It must be remembered that such heavy laying is a very big strain, and that in producing a new set of feathers the bodily reserves of strength are still being taxed. It appears to me both greedy and unwise to try to force the moult through and start egg laying again without allowing nature a reasonable time over it.

Consequently, except that my birds will be well supplied with maize in some form or other, they will get no other special treatment. Occasionally I have tried linseed meal in the mash, but am very doubtful whether it is an economical method. Linseed is expensive, and for this reason, and for the others briefly mentioned above, I doubt whether it is worth while using it for the sake of getting the birds into lay again a week or two earlier.

GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG LAYING TRIALS.

Report for Ninth Month.

Heavy Breeds.—No. 1. J. Joshua, Tondu (R.I.R.), 474 eggs; No. 2, J. Joshua, Tondu (W.W.), 498 eggs; No. 3, J. H. Williams, Pontardulais (W.W.), 464 eggs; No. 4, Eaton and Poor, Pontardawe (W.W.), 465 eggs; No. 5, Howell and Phillips, Barry (R.I.R.), 391 eggs; No. 6, T. Rees, Ystrad Mynach (W.W.), 466 eggs.

Light Breeds.—No. 1, Howell and Phillips, Barry (W.L.), 545 eggs; No. 2, J. R. Thomas, Barry (W.L.), 514 eggs; No. 3, C. Spiller, St. Fagans (W.L.), 515 eggs; No. 4, C. Spiller, St. Fagans (W.L.), 539 eggs; No. 5, E. A. Hanm, Pengam (W.L.), 525 eggs; No. 6, R. H. Davies, Radyr (W.L.), 514 eggs.

Cost of food per week (Dry Mash) per bird: 2.36d.
Cost of food per week (Wet Mash) per bird: 2.51d.
Dry Mash consumed per bird per day: 2.15 ozs.
Wet Mash consumed per bird per day: 2.43 ozs.
Dry Mash: Birds laid 1,051 first grade, and 649 second grade eggs.
Wet Mash: Birds laid 889 first grade and 640 second grade eggs.
Cost of food per egg, Dry Mash: .65d.
Cost of food per egg, Wet Mash: .76d.

C. F. DUNKLEY.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Correspondence.

FOOD PURCHASE SCHEME.

To the Editor of "Eggs."

Dear Sir,—The scheme suggested by the S.P.B.A. for a central organisation for the purchase and distribution of foodstuffs is a business proposition, which is likely to appeal to the majority of egg farmers, provided that it is properly managed.

In consequence, the egg farmers in this district have taken the necesssary steps to form a society which will be in a position to act as a branch of the S.P.B.A. central organisation, if required, provided that the proposed scheme is carried out in such a manner, that prices of foodstuffs will compare favourably with those which can be obtained at the moment.

Having had a fair amount of experience in connection with poultry, and other farmers' organisations, I should like to make the following suggestions regarding the scheme, which, in my opinion, are essential to its success:—

(1) That the central organisation shall be controlled by a manager, who shall be instructed by a committee composed of not more than five members, all having a knowledge of food buying.

(2) That the central organisation shall deal only with branches, and not direct with individuals.

(3) That the number of branches permitted to deal with the central organisation shall be limited, and that each branch shall cover as large an area as possible.

(4) That these branches shall consist of direct members, who shall hold at least one share, and of smaller societies, which shall hold at least three shares.

The outcome of these suggestions would be that a chain would be linked up from the central organisation to the smallest poultry-keeper, and that everyone could benefit according to the size of his undertaking.

If the central organisation attempts to deal direct with individuals, I feel sure that the work entailed will be beyond the capacity of any manager or committee.

If, on the other hand, certain main branches are formed, which can order in bulk, the central organisation can concentrate its efforts on purchasing foodstuffs in the right quarter at the right time.

I would further suggest that the main branches should only admit direct members who are willing to take up shares to the value of £10, and are prepared to order food in not less than one ton lots. This would eliminate the possibility of small poultry-keepers joining as direct members, and demanding small supplies at the same price, as those allowed to the large egg farmers, and further it would encourage the former to form societies with a smaller share value, and a secretary, who could order foodstuffs from the main branch, in one ton lots, to be delivered to the headquarters of the smaller society. A small charge would be made by the central organisation, the main branches, and the smaller societies, to cover the cost of handling the foodstuffs, which would result in every poultry farmer obtaining prices according to the size of his order.

The weak point in co-operative purchasing societies has usually been that the large egg farmer does not reap the benefit he should from co-operation, and that all the advantages go to the small poultry-keeper, with the result that the large egg farmer withdraws his support, and returns to his old methods of purchase.

The theory that the large egg farmer should support the small poultry-keeper is excellent, provided that the large egg farmer is making more money than he requires, and is welling to act as a philanthropist, but, as is well-known to-day, the average farmer is struggling against odds to make a living, whereas the small poultry-keeper often has some other means of subsistence.

Charity begins at home, and everyone must attend to his own business until he has made enough to provide for his own requirements, and can afford to dispose of the surplus, either by charity, or by providing other industries with capital by investment in their concerns.

Yours faithfully,
A. L. HUNT (Capt.).

THE MARKETING OF POULTRY.

To the Editor of "Eggs."

Dear Sir,—The articles on the above subject by Mr. Clarkson, if they do not contain anything startling new to those who from the "Mecca" of the table fowl industry in Sussex, are wont to send regular supplies of "Surrey" chickens and capons to the London Market, nevertheless contains very essential information to the "don't know," imparted by an expert at the "receiving end" of the industry, on pitfalls, and how to avoid them, and is the sort of useful information one looks to find, and is never disappointed, in "Eggs."

The questions, however, that I should like to put to him concern solely what he has to say regarding the London Market Seasons, which he divides into four, viz.: Spring, Summer, Winter and Christmas.

As the Christmas market is the next one looming before us, let us begin with this. The turkey has undoubtedly become associated with the Christmas festival in the public mind as an essential part of that festival, almost as much as "Father Christmas," but I do not suppose that Mr. Clarkson intends to suggest that a prime "Surrey" capon will not always fetch a first-rate price at this season of the year, not that epicures would prefer turkey to such a capon; more especially the foreign turkey, the flesh of which is very dry as compared with the more succulent capon.

Now as regards Spring, we are told that this is *the* time for good prices, because chickens are scarce—granted—but if good 4lb. Surrey chickens *were* marketed in *January*, *February*, and *March*, would they not be equally saleable as in April? And I have it on the authority of another salesman that first-class "Surrey" chickens will *always* fetch a good price; the months to be avoided being July, August, and September, for obvious reasons, though the seaside resorts may even then afford a moderate market.

As regard the prices falling from May onwards, he is, of course, correct. In May I saw some unfatted Light Sussex chickens sold at Heathfield Market at 10s. each. Last week they fetched 5s. each, yet I have in front of me the fortnightly price list of a well-known West End firm which is dated *July* 1st, and under "Poultry and Game" I read: "Fine, plump chickens, 2½lbs. to 3½lbs., per lb. 2s. 3d.; Surrey fowls per lb., 3s. and 2s. 9d.!!!"

In conclusion, sir, may I ask if we may have some hints on the better marketing of table-poultry. A little while ago we heard some vague allusions to American "cased" birds (whatever they may be), and how much better their system was to ours, but we are left to imagine the rest. The Sussex "pad" may have been good enough for our grandfathers, but *is it good enough for us*? Our system, if such a term can be applied to it, of marketing table poultry, would certainly benefit by a little reform.

Yours faithfully,
"HEATHFIELD."

THE "EAT MORE EGGS" CAMPAIGN.

To the Editor of "Eggs."

Dear Mr. Newman,—At the National Poultry Parliament, which is to be held next week in Salisbury, there is a resolution to be submitted by Mr. E. Bostock Smith, on behalf of the National Poultry Council, that will be of more particular importance to the progress and advancement of the Poultry Industry than any other in the eyes of Poultry-Keepers generally.

I refer now to resolution No. 6, dealing with increasing the consumption of eggs.

At last the industry has a great chance to increase its goodwill among the nation generally in these isles. It can, if it seizes this opportunity, almost double the worth of its capital, the value of every British hen can be increased, and the business of poultry farming made more promising.

It is doubtful if we shall get the Merchandise Marks Bill through for some time yet, which includes the clause for the marking of imported eggs. Here is something all of us engaged in producing more hen-fruit in this country can improve, and at once.

Let every Poultry Club and Society in Great Britain unanimously support this resolution by instructing their delegates, or writing the National Poultry Council asking them to organise such a campaign without delay

Give fullsome opportunity for the gospel of eating more and better eggs to be taught and preached scientifically in every town and city.

There is every reason to believe that a boost advertising campaign can increase the demand for home new-laids, more than double.

Seventy per cent. of the egg-buying public know nothing about the food value of eggs. It is our duty to them and ourselves to go about and tell them.

Only this last week a prominent physician tells us that cancer can be prevented in human beings where more vitamines are consumed, and where are they more prominent than in new-laid eggs?

There is no doubt that if a consensus of specialist medical opinion of nutritional diseases in man were taken, it would be wholly in favour of everyone eating more new-laid eggs.

The United States department of Agriculture tells us in a recently issued bulletin that one pound of eggs supply about 595 calaries of energy, 54 grains (about 2ozs.) of protein, 0.27 grams of calcium, 0.73 grams of phosphorous, and 12.2 milligrams of iron. The interpretation of these quantities when applied to man's daily needs means that one pound of eggs would furnish 17 per cent. of the amount of energy he would require, 54 per cent. of protein, 40 per cent. of calcium, 55 per cent. of phosphorous, and 81 per cent. of iron. Thus we see how eggs contribute to every demand of man's body, no branch of the system being neglected, every component being supplied with material that is easily digested and assimilated in the body.

There are hundreds of other good points why we should tell the people of the wonderful food poultry-keepers are producing day by day, and now has arrived the time for doing it.

The cost will not be heavy compared with the value to be obtained, and what is more, every hen owner is going to feel the benefit, one that is worth while.

There are some people who may doubt that the money suggested, £10,000, can be raised; there are more probably who do not. Once the industry has regained confidence it will go forward with such tremendous strides that the Jeremiahs will be confounded.

We have improved our methods of producing poultry that can lay, our system of managing layers is becoming more commercialised day by day, the only thing that remains is to increase the markets for our produce. This we can do readily if we handle this job with vision and enterprise, and at the same time confer a real benefit on our customer. The consumer will buy our eggs, who to-day is probably spending good money on eatables that are very much less in food value in comparison.

Support the National Poultry Council's "Eat More Eggs" Campaign, strive for their support, have faith in the scheme, and above all "work" when you will be asked to, and a glorious path of poultry prosperity will be open to every seeker after health and wealth through the medium of man's feathered friend, our domestic hen.

Now is your chance, Poultrymen, one and all make your voices heard NOW.

Faithfully, yours,
ALBERT M. BRAIN.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Waroop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

A. P. (Great Clacton). The sample of middlings you send is a very moderate one, but I consider it dear at 11s. cwt.

E. L. J. B. (Pinner). A good mash for the White Wyandotte cockerels would be: 2lbs. middlings, 1lb. each barley meal and Sussex ground oats, half part maize meal and half part meat meal. This should be scalded, allowed to stand, and given twice daily, as much as they will clear up in a quarter of an hour. In addition, give them a feed of either boiled wheat or rice as the last feed. If you gave the pullets a small scratch feed once a day and a good 1½ozs. as the last feed that would be all the grain they would require. The best would be: Two parts wheat, one oats, and half kibbled maize.

E. B. (West Bromwich). I have been carefully through the records of the 14 pullets you have sent. Those which it would be advisable to reject as breeding stock are: Purple, 152 eggs; Green and White, 129; Black, 135; Red and Blue, 143. Purple did not lay her first egg until ten months old, her winter record is poor, and a high percentage of eggs are thin-shelled, which would mean weakly chicks. Green and White is too small a bird to use as a breeder. Black's eggs are too small, and as Red and Blue has a wry tail, which is hereditary, you could not use her. The other ten birds will make you a nice pen, if you can get a cockerel from a dam with a record of about 240 eggs, with, of course, a good winter record. (2) The Black feathers in the White Wyandotte pullet is not a sign of impurity. The White was a "sport" from the Silver-laced, and you will understand that the occasional appearance of a black feather is not surprising.

S. F. E. (Taunton). The sample of mash you send is quite sufficient to account for the poor yield of eggs. It contains a very inferior sample of middlings, and has a good deal of oat husk, and the clover is represented by the refuse from the threshing machines. Your birds must be in a very poor condition. I would advise you to put them on the following mash at once: 2lbs. bran, 4lbs. middlings, 1½lbs. Sussex ground oats, 1½lbs. maize meal, 1lb. meat and bone meal. As grain give kibbled maize. This should result in an improved egg yield.

J. M. (Newark). Black Bresse would suit your purpose admirably. They are not in the least delicate, and are good layers of good-sized eggs. I would not pay the least attention to the exaggerated language which is being used by some judges. At all shows there are birds which are small or large for their breed. It would be disaster if we were to breed for size in the Bresse. The typical Bresse is really economic, and in many respects is unique. We do not want a bigger bird with a huge coarse frame. You cannot have a big bird without a big frame, and that means slow development, which is uneconomic. One of the chief characteristics of the Bresse is fine bone, and that we must preserve. (2) Your house would accommodate 24 birds.

E. W. P. (Lowthorpe). As your White Leghorn pullets have put up such remarkably good records since last October I would not discard them because one or two have been broody once or twice during the season. Then again, those with equally good records are just commencing to moult. If this is due to their being through the broody coops I would not discard them on this account, because the probability is that when they were in the broody coops you slightly under-fed them, and this brought about the moult. With regard to the birds which you say are not good enough to breed from, but which you would like to retain for another year. Those which just fail in the winter records but will put up over 170 for the full year I would keep, but you must study environmental conditions and your birds, to a great extent, yourself. There are matters on which I could not help you without seeing the stock. I would not like to say definitely that all birds moulting before the middle of August are not worth keeping a second year, because there are so many factors which may cause a bird to go into a premature moult. Yes, October moulters are profitable as egg producers in the second year. As a rule they come through the moult very quickly. Your best plan will be to do as you suggest—pick out your birds by their paper pedigree and then handle them. You are not exceptional with regard to the rearing season. So many people had heavy losses with their April-hatched stock, but did much better with the early March-hatched. I would not use maize germ meal for adults or use it at all, as some of the samples which have been sent lately have been causing trouble, so that I would prefer the maize meal. They seem to be extracting germ meal in a manner which, for some reason or other, makes it injurious to the chicks. The sample of bran No. 2 is not quite so good as No. 1, but the sharps No. 2 are rather the better. The sample of germ meal is a very good one, but you should always be careful in buying it. The ground oats are not "Sussex" ground, neither are they a good sample. There is too much husk.

A. H. B. (Hindhead). The middlings at 10s. 6d. are very inferior, containing a high percentage of bran, and they are not good enough to use. Surely there must be some mistake. You do not want to pay anything like 30s. for fish meal. You can get the best brands for 23s. This sample you send is a very good one, but you have been charged much too highly for it. The maize gluten is a fair sample, but if I were you I would use maize meal instead, as I have said so often lately we have received numerous complaints as to maize gluten, owing to its being rather a dangerous food to use for poultry, through a different method of extraction, I think. It was a good sound food at one time. The bran is just moderate. The ground oats are good, and good value for money.

E. H. (Rotherfield). In reply to your question re breeding. I do not think it would be advisable for you to mate one of the sons of the hens to his dam or to mate the cock to his daughters. You must understand that when you ask such questions as this, I can only advise you to do so when you have most exceptional birds and are doing it for a specific purpose. If you are dealing with birds which show any defects, such matings would only intensify them in the progeny. It is not a question of its being too close; that does not arise. A man might mate brother and sister without any bad results, provided they were exceptional birds, healthy in all respects and had no serious defects. A very remote relationship might be disastrous if the birds lacked stamina, or possessed serious defects. I think the soundest advice I can give you is not to do what you desire to do. On the whole, I would not advise you to breed from a cockerel hatched last January with a crooked keel.

"Henwife" (Wexford). The autumn hatching of chicks is not carried out very extensively, but some breeders hatch a few in order to provide table poultry. For egg production it would not be profitable. May I refer you to the articles on the Marketing of Table Poultry, which are now being published weekly in "Eggs"? These are written by an expert, and you could not have anything better as a guide. Capons would probably fetch a higher price per lb. than ordinary birds at Christmas. The weights would vary with the season. Birds in the Spring would not require to be so heavy as those later in the season. The best birds for the English market are white flesh birds and white legs. These always realise a higher price. The Sussex, or crosses with the Sussex, are preferred.

"Aram" (Ropley). Fish Meal is richer in lime phosphates than meat meal, and for that reason is to be preferred. But this difficulty might be overcome by using a good sample of meat and bone meal. The disadvantages of fish meal are that many samples contain an excess of oil or salt. Of the two I should say the fish meal is more likely to contain injurious impurities. With regard to your over-fat hens, add more bran to the mash, open the mash hoppers later in the day, make them scratch for all their grain. I am sorry I cannot advise you as to a good book on duck-keeping, you should write to the Secretary of the Utility Duck Club, Mr. H. B. Carrington, Blacklands, Crowhurst, Sussex. I cannot understand how, on your mash, your stock should be in an over-fat condition. Before making any alteration you should satisfy yourself that this does not apply only to one or two individuals. If the egg yield is satisfactory I would not alter the feeding. There are always individuals in a flock with a tendency to be too fat. With regard to diseases with ducks. I understand there is a considerable increase of Cerebro Spinal Meningitis.

POST-MORTEMS.

D. C. R. We regret to inform you that the pullet was suffering from cholera. It is awfully infectious and generally fatal, and any that recover are apt to be carriers, and for this reason we advise internal disinfectants for the whole flock, and the most thorough disinfection. Removal of the sound, and leaving suspects behind, is better than weeding out the sick, if the accommodation permits. Of this you will know best. We recommend giving water only which has been prepared by admixture of six grains of perchloride of mercury, and fifteen grains of sulphocarbolate of zinc to the gallon.—P.S.—The water must not be put in metal containers.

Col. G. P. O. S. Both the ducklings were the subject of infectious cerebro-spinal meningitis, a disease of which up to the present the causative agent is not known, but which is being investigated at three scientific laboratories. To prevent congestion and promote elimination five grain doses of the hyposulphate of soda per bird has empirically been of service in other outbreaks, and is well worth trying.

Mrs. E. M. B. Post-mortem examination shows that an infectious fever has developed, out of what was originally a chill, and probably acquired in the circumstances related by you. The chief thing now is to recognise its infectivity and guard against it as far as the circumstances will allow. Besides removing to a new site we would advise dipping the heads in a one per cent. solution of permanganate of potash in water, holding the beak under for a few seconds, so that the medicament may penetrate the cleft palate from whence the eyes are infected. Forty grains of citrate of iron and quinine in the drinking water should also fortify against the disease.

M. J. The post-mortem on the ducklings showed the cause to be infectious cerebro-spinal meningitis, a disease that is greatly on the increase among aquatic birds. The causative agent is at present unknown, but is the subject of expert investigation, so that we hope that more light will be thrown on the subject in the near future. Treatment under the circumstances can only be empirical, but good results have been reported from the administration of five grains per head of the hyposulphite of soda, given either in the drinking water or in the mash.

O. G. The cause of the turkey chick's death was not due to any infectious disease, but to blocking of the intestines with a mass of twisted-up grass forming a regular rope. The gizzard was also obstructed and about eleven inches of the bowel. The remedy is to either have the long grass cut or graised off before allowing the birds access to the ground. We should also advise that any of the others that have been exposed to the same risk should be given teaspoonful doses of medicinal paraffin for three or four days in order to relieve any impaction that may be present.

M. H. The post-mortems on the two pullets showed that they were suffering from rickets and nephritis, with the usual wasting accompanying these conditions. Rickets being one of the deficiency diseases, we think that these individuals have been the subjects of vitamine starvation, so we propose to keep the live birds under observation and treatment for a short period. This treatment, etc., will be free of cost to you, but we shall be obliged if you will forward the fee of 5s. for report and letter.

Com. H.-L. We have minutely examined the two birds, but can find no trace of roup, or any of the spots or patches you mention. Both birds were, however, suffering from a catarrh, which, however innocent in itself, provides a favourable seed bed for the development of the roup germs which are ubiquitous. It would be advisable to isolate the suspects and treat the whole flock by dipping their heads, with mouth open, into a vessel containing a one per cent. solution of potassium permanganate. To fortify and raise resistance, drinking water should be provided, in which forty grains of citrate of iron and quinine to the gallon has been dissolved. Any birds showing undoubted roup should receive the same treatment, but in addition the patches should be thoroughly scraped off and the bleeding area well cauterised with a stick of silver nitrate.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

EGG-LAYING TEST.

THE GLOUCESTERSHIRE REPORT.

A MOST UNFAVOURABLE PERIOD.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping), for the ninth month ended June 13th, 1924:—

With the exception of the last few days of this period, the weather has been most unfavourable for egg production, 5,627 eggs being collected, against 6,008 the previous month, giving a total of 41,908 for the nine months, and a pullet average of 137.8 in respect of 304 birds entered. It is regretted that two further deaths have to be reported—Section A.—L. B.

Section A.—Light Breed (Professional). (Five birds constitute a Pen).—Major J. G. Dugdale, 3,713 pts.; G. B. Metcalfe, 3,646 pts.; Hinton Poultry Farm, 3,440 pts.; H. T. Godber, 3,341 pts.; J. L. Brown, 3,301 pts.; Coaley Poultry Farm, Ltd., 3,295 pts.

Section A.—Heavy Breed (Professional).—T. L. Davies (W.W.), 3,491 pts.; H. W. Fowles (W.W.), 3,383 pts.; P. S. Beales (W.W.), 3,377 pts.; W. R. Partridge (W.W.), 3,259 pts.; G B. Metcalfe, (R.I.R.), 3,148 pts.; G. H. H. Simmons (W.W.), 2,978 pts.

Section B.—Light Breed. (Confined to owners of not more than 50 laying head).—Mrs. S. A. Brown, 3,210 pts.; J. A. Hall, 2,970 pts.; K. Wilson, 2,404 pts.; Mrs. A. Japp (B.L.), 2,397 pts.; J. D. Crewdson, 2,219 pts.

Section B.—Heavy Breed. (Confined to owners of not more than 50 laying head.—L. Grist (W.W.), 3,263 pts.; Maisemore School (W.W.), 3,237 pts.; C. G. Young (R.I.R.), 2,598 pts.; Miss M. Lawrence (R.I.R.), 2,524 pts.

SINGLE PEN SECTION.

Section I.—White Leghorns.—Misses Ransford (12), 851 pts.; Major J. G. Dugdale, 850 pts.; L. Grist, 757 pts.; Misses Ransford (2), 739 pts.; J. E. Boyd, 734 pts.; Misses Ransford (5), 687 pts.

Section 2.—White Wyandotte.—Phillip Clapham, 870 pts.; W. R. Partridge (18), 844 pts.; W. R. Partridge (23), 860 pts.; Lord Sherborne, 796 pts.; Miss H. Baylis, 765 pts.; W. O. Garbutt (25), 765 pts.

Section 3.—Rhode Island Red.—F. W. Clifford, 800 pts.; Miss H. Reed, 708 pts.; A. Daunton (44), 701 pts.; A. Daunton (32), 700 pts.; Miss M. Lawrence, 689 pts.; J. N. Horne, 557 pts.

Section 4.—A.O.V. Light Breed.—H. S. Hitch (Anoona), 733 pts.; G. B. Metcalfe (B.L.), 732 pts.; H. L. Lemon (Black La Bresse), 667 pts.; A. Daunton (Ancona), 666 pts.; M. A. Greenway (B.L.), 586 pts.; L. Grist (Ancona), 574 pts.

Section 5.—A. O. V. Heavy Breed.—Major J. G. Dugdale (L.S.), 935 pts.; Mrs. Weinholt (Aus. Orp.), 764 pts.; J. L. Brown (L.S.), 738 pts.; Miss Lawrence (Barneveld), 719 pts.; Miss H. Reed (L.S.), 671 pts.; F. R. Welch (L.S.), 612 pts.

Section 6.—Ducks.—Mrs. A. Japp (W.R.), 185 pts.; Major J. G. Dugdale (K.-C.), 171 pts.; Mrs. E. Weinholt (K.-C.), 168 pts.; W. R. Partridge (8), (W.R.), 167 pts.; W. R. Partridge (10) (W.R.), 159 pts.; Miss M. Lawrence (K.-C.), 155 pts.

Pen Duck Section. (Four ducks to the pen). Report for the eighth month ended 30th May, 1924. It is also regretted that one death in this section has to be recorded.—Major J. G. Dugdale (K.-C.), test score, 627; Bradley Agricultural School (K.-C), 613; G. H. H. Simmons (K.-C.), 512; D. C. Herbert (K.-C.), 498; W. R. Partridge (W.R.), 482; Sherborne Park Poultry Farm (W.R.), 476.

(Signed) R. A. and A. M. JOHNSON.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

GAPES.

A majority of the diseases of fowls present such difficulties of diagnosis by ordinary means—means available to the poultry farmer—that the advice is generally given to kill the first subject, and submit it to post-mortem examination.

Most poultrymen would quote gapes as an example to the contrary, for the conduct of the afflicted chick is such that it cannot well be mistaken for any other malady. It will therefore surprise many readers to learn that quite a number of members of this scientific association have failed to diagnose the disease caused by the presence of the Syngamus trachealis, as the gape worm is called. Quite a lot of chicks have been recently received that have actually died of suffocation by reason of the number and disposition of these parasites in the air passages.

Some of the senders have described a difficulty in breathing, just as might be the case with catarrhal affections, notably infectious colds, and when the lungs rapidly fill with blood from congestion brought on by breathing bad air, by overheating, and by sudden changes of temperature, or by specific infection. Some of the senders of infested chicks have made post-mortem examinations and failed to find the worms, because they have not been aware that the parasites retreat down to the bifurcation or junction of the great bronchi directly the dead bird begins to cool. The dissector is therefore advised to skin the neck right down to the breast and look at the lowest portion of the pipe, where he will find a bunch of worms if they are present at all.

The importance of early diagnosis is again urged, no matter what is the supposed cause. Prompt isolation pending enquiry is again insisted on without apology for dinning these things into readers of greater experience than those who fail to diagnose or even suspect parasitism as the cause of birds extending the head with a gasp from the open mouth (gaping) and retracting the neck at frequent intervals.

Methods of infestation. It is difficult to interest agricultural students in the life history or life cycle of parasites, and yet it is of the utmost importance to learn their ways. It has been my privilege to lecture to some of the best of County Council classes, but they were distinctly bored when parasitism was the theme, unless among my specimens was a tapeworm yards long; but how many of them could tell an examiner by what means the gapeworm gains access to the windpipe of the chicken? They will all pull out their note-books if a prescription is written on the black board for the **cure** of a disease, while their teacher is anxious to instruct them how to **prevent**; which is better than to cure. It is to be regretted that the foregoing remark applies only too much to persons of maturer years. To combat parasites we need to learn when they are most vulnerable, and wholesale methods applicable. We do not use butterfly nets to catch the saw fly, but grease-band the tree against the climbing grub. So with the gapeworm. Having learned its habits, we seek to destroy its embryos. The worms are generally found paired. The male is insignificant in size, and looks like a branch or small arm extending from the neck of the female. It is a lifelong attachment and an indissoluble tie, for they cannot be separated without the death of the female, whose body, becoming full of eggs, finally bursts; it may be within the host, or more generally is coughed up, and the eggs become embryos in moist places or complete their development in water, and hence we find wet seasons the most prolific of gapes. Some observers are of opinion that those females which break up inside the trachea of the host complete the life cycle within. The embryos have also been found in earth worms, but they are presumably taken by accident with the soil, and the worm is not regarded as a natural host although occasionally acting as such to the "early bird" that catches him. Chicks unfortunately are attracted by the bright red worms gorged with blood and coughed up by their fellows, and the eggs inside them are hatched in the stomach, the embryos migrating from thence to their final habitat. Briefly then we have a perpetual source of reproduction, both within and without the ultimate host—chick.

What prospect then is there of successful treatment of large numbers? Should we not concentrate on prevention? Treatment of the land and floors of houses and medication of the drinking water offer the best hopes of keeping down to a minimum; but utter eradication is not possible, because wild birds constitute carriers, and provide for the survival of the species.

Treatment of ground.—One per cent. of sulphuric acid in water has been found effectual in laboratory pot experiments, but is more or less injurious to pasture plants and becomes a question of choosing the lesser evil. Lime placed in lumps at intervals and allowed to slake and be then knocked about over the surface is destructive of the soft embryos, as is a solution of one ounce of sulphate of iron to the gallon of water. The commercial quality is cheap, and what the analytical chemist regards as contaminations are rather to be welcomed in this connection. The retail chemist will always try to sell you the pure and much more costly article. Two drams of permanganate of potash to 25 gallons of drinking water is also recommended. Salicylate of sodium in the proportion of three drams to the quart of drinking water is advised by Theobald, but the present writer has not tried it, and it seems a large amount for continued use. For the gouty conditions met with in mature birds he has found it of great value.

Wholesale treatment of the infested is the only practical method in dealing with large numbers, and garlic has long had a reputation. The so-called "cloves" of this plant are ground up with gentian as a tonic and mixed with food. All the volatile substances which are exhaled over the membrane where the worms haunt are of more or less value. Among these are turpentine, assafaoetida, oil of cloves, camphor, and eucalyptus, but their odour and pungency are against their use, being often refused. Some of the proprietory preparations are useful, but I dare not name one of them or the other vendors of medicines would demand an unpaid advertisement, skilfully worked into the text of the next article—or the head of Mr. Newman in a charger. Prevention is better than cure.

Marketing of Poultry.

By A. V. CLARKSON.

We now come to the very vexed question of market reports. The market reports shown in reliable journals are invariably absolutely correct, but unfortunately they are all incomplete. In addition to this fact some weekly journals contain only the market reports as they were a week previous. The writer's experience regarding market reports has forced him to refuse absolutely to discuss prices with any journal which intended to publish them. To qualify the FOREGOING remarks the writer would state that if every market report was prefaced by the FOLLOWING remarks they would be complete.

The actual value of table poultry is governed by several very important factors, and the following are the more serious:—

1. The quality of the birds and the method of marketing.
2. The state of the market at the actual time of arrival (bearing in mind that the market often varies daily).
3. The size of the particular class of bird referred to (bearing in mind that chicken vary from 6ozs. to 6lbs.).
4. The method by which the bird has been prepared as regards feeding. For instance, a grain-fed bird will look and eat hard and dry, whereas a bird which has been soft-fed in a proper coop, will be, look, and eat tender, and be much more pleasing in appearance.
5. The colour of the chicken may make as much as 3d. per lb. difference on birds of the same size. For instance, a white legged, white fleshed variety of chicken has a much more pleasing table appearance than one that is yellow or black legged, and yellow fleshed.
6. It is unwise to forecast what prices will be ruling on an open market.

Cannot the reader see from these facts the margin of difference that exists in the various classes of poultry. There are many who can only read in a market report what is the top price that chickens can realise, and ignore the fact that there is also the lowest price a chicken can realise. If the writer had his way the market report should be surrounded with "DANGER" signs, so that they would serve as a warning to the readers, because it is his opinion that, being incomplete, they are a misleader to many readers rather than a guidance.

Why is it that so many producers fondly imagine that their cockerels, which have been running round the farmyard for five or six months, will realise as much as the cockerels which have been specially bred for table, and properly fed, so that at 13 weeks they scale somewhere near the region of 5lbs. each.

A typical letter written to a salesman reads something like this:—

> "How is it you only return me 1s. 6d. per lb. for my chicken when I see by such and such a paper that the market price for chicken is 2s. 10d."

The writer's advice is that the market value of chicken is only ascertained when they are in market, and the surest way of testing that value is to send a sample consignment of, say, a dozen birds to the market, and ask the salesman's opinion regarding the consignment. Poultry salesmen are always in need of best quality table poultry, the supply very seldom being equal to the demand.

There is another class of market report which is invariably absolutely incorrect. That is the newspaper reports regarding the poultry market at Christmas time. At this time of the year people who know nothing whatever about poultry, go round the various markets asking people (some qualified and some otherwise) what their opinion is of the prospects for poultry at Christmas. Some of these travelling "public educators" start their tours perhaps six weeks or more before Christmas. Having obtained a certain amount of information they embellish it with their own imagination, and the result gets published for the public benefit, and is naturally read by the producer. It would seem to be the main object of this class of person to give the public as much reading matter as possible (it presumably being paid by the inch). The mere fact that the salesman at that time is not in possession of the Continental Statistics is quite a minor consideration to those broadcasters of poultry education. The writer would casually mention that the Continental Poultry Statistics absolutely govern the market value of all poultry at Christmas time, because if the consumer can buy a large turkey at a low price, it is certain he will not buy a small chicken at a high price, nor an English turkey at an enhanced price.

If the producer wants the truth he should seek it in the proper place. The proper place for the producer to ascertain market values is in the market.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Perkins, C., White House, Thurgarton, near Norwich.
Smith, Fielding, Bagstone P. Farm, near Bristol, Wickwar P.O., Glos.
Spencer, Miss M. J., The Cottage, Wellingham P. Farm, Lewes.
Newsome, Harold H., The Poultry Farm, Woodplumpton, near Preston, Lancs.
Sykes, Wallis, "The Moorlands," Ravenfield, near Rotherham.

Sutton, J. F. G., Stoford, Salisbury, Wilts.
Southworth, Fred, 43, Industrial Street, Bacup, Lancs.
Charlton, Miss H., Brownshill Court, Stroud, Glos.
Ingram, H., The Myrtles, Newtown, Verwood, Dorset.
Lang, Miss I. J., Bungalow Hotel, Little Sark, C. Islands.
Barnes, Herbert S., Baskop, Transvaal, S. Africa.
Watson, Miss L., Plumtree Hall, Milnthorpe, Westmorland.
Clarkson, Geo., The Bungalow, Bolton-on-Dearne, near Rotherham.
Elliott, J. R., "Northumberland House," Colyers Lane, Erith, Kent.
Baxter, J. Howitt, Barlborough House, Highgate, Goldthorpe, near Rotherham.
Rippen, F. A., Wayside, Hatfield Heath, Harlow, Essex.
Richards, Fred J., Bickham, Bere Alston, Devon.
Staniforth, W. Roebuck, Todwick Manor P. Farm, near Sheffield.
Livio, Terilli, Villa Principe Aldobrandim, Frascati (Roma), Italia.
Wellington, W. R., Riversdale Poultry Farm, 72, Campbell Road, Twickenham.
Armitage, Hildred, 3, Waller Clough, Golcar, near Huddersfield.
Comber, John D., "Downcliff," Downderry, Cornwall.
Nathan, H. H., The Firs, Shenfield, Essex.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

Minutes of the Council Meeting, held at Preston, on Saturday, July 5th, 1924. Mr. J. Edmundson occupied the chair.

Apologies for non-attendance were received from Mr. A. T. Walker (President), Mr. W. Hammett, Mr. S. Marson, and Mr. J. Whalley.

Minutes.—The minutes of the last Council Meeting were confirmed and signed.

Correspondence.—A letter was received from Mr. J. Graham (Barrow) resigning from the Council on account of ill-health. Mr. T. Hudson proposed, and Mr. F. Thompson seconded, that we receive this resignation with regret, as Mr. Graham had taken such an active part in the working of the Federation. The Secretary was instructed to write a letter expressing the sympathy of the Federation.

A letter was received from the Oldham Society re one of their members not getting satisfaction from a person from whom he had purchased goose eggs, was left in the hands of the Secretary to deal with on the proposition of Mr. J. Hall, and seconded by Mr. J. Barnes.

A letter from the Atherton Society, nominating Mr. J. E. Morris as a Federation Judge, to be added on the Panel of Judges, was accepted.

A letter, received from Mr. T. Gardner, suggesting that no Federation Judge shall be eligible to judge at two successive Federation Club Shows, was referred to the Educational Committee.

Delegates to National Poultry Parliament.—It was resolved that the President and Secretary attend the Poultry Parliament Meetings at Salisbury, on the proposition of Mr. J. Hall, and seconded by Mr. F. Thompson.

The delegates were instructed what course to take re the various resolutions that will come up at the Parliament Meeting.

Westhoughton's Society's notice of motion to award a Shield at the Federation Show for teams of birds, was referred to the next Quarterly Meeting, on the proposition of Mr. T. Edmundson, seconded by Mr. T. Hudson.

Accounts.—The accounts submitted for printing were passed for payment, on the proposition of Mr. F. Thompson, seconded by Mr. A. Grime.

Standard for Exhibition Utility Poultry.—Mr. W. Grove placed the full details before the meeting, and it was resolved to accept these, on the proposition of Mr. F. Thompson, and seconded by Mr. M. Houghton. The Secretary was instructed to get the Standard printed in leaflet form, and circulate same to Federated Societies, which will be sold at a nominal figure. (These will be in the hands of the Societies in about a fortnight).

Laying Test.—Mr. J. Edmundson reported on behalf of this Committee, and said that full particulars of Test for 1924-5 would be issued before the end of July. Mr. F. Thompson proposed a vote of thanks to Mr. Edmundson for the work he had put into the Laying Test, and this was carried unanimously.

Finance.—Mr. J. H. Hill reported, on behalf of this Committee, and stated that all accounts had been paid up to date, including the National Poultry Council Fees for 1924-5.

Educational and Propaganda.—Mr. W. Grove reported on behalf of this Committee, who said all their time had been taken up with the Standard, and he was pleased to say that the work was now complete. He also said he had received a request from Manchester South District Society and Messrs. Storeys for return of money sent, for adverts. in the Year Book. Mr. T. Hudson proposed that this money be refunded, and this was seconded by Mr. Hayes, providing they do not wish to leave it over until the Year Book is issued.

Show.—A letter, received from Mr. W. Hammett, asking for powers to allocate Judges to certain classes, was agreed to on the proposition of Mr. T. Hudson, and seconded by Mr. Barnes. The Show Committee was also requested to fix the classes and deal with all the Show business.

Times of Meeting.—Mr. F. Thompson proposed that all meetings commence at 3 p.m. in future, instead of 3.30 p.m. This was seconded by Mr. J. Barnes.

The pooling of delegates' railway fares came out at 3s. 8d. per head.

This closed the business, and the meeting terminated.

E. COLLIER, Organising Secretary.

MEETING OF THE MIDDLESEX BRANCH OF THE POULTRY CLUB, JUNE 16th, 1924.

Present: Mr. Powell-Owen (in the chair), Messrs. Brown, Utting, Flewellin, Wells, Piper, Captain Knight. Mrs. Scolding, Mrs. Smith, and the Secretary, Captain J. W. Smith.

A discussion took place on the details for the seven o'clock meeting, to which had been invited the Secretaries of Clubs within the county, and it was agreed that the Chairman should welcome the visitors, and the prospect of a County Show for 1925 be considered. Capt. Knight on how shows were run and could be improved. Mr. Hussey on inter-club contests, nominated birds and breeds. Mr. Brown on advantages on joining the Poultry Club. Afterwards a general discussion took place, and Mr. Lightbody promised to prepare a scheme for the inter-club contest on the lines of the Football League Contests. Those present, and clubs represented, comprised:—

J. Fitzpatrick, of Islington and District P.C.
D. Turtell, of Twickenham and District Poultry Club.
W. E. Clifton, of Hornsey and District Poultry Club.
A. C. Rich, of Earling and Hanwell.
W. Warriner, of Campine Club.
A. R. Lightbody, Hendon District Branch.
—. Fisher, of Edgware Branch, N.U.P.S.
A. Downer, of Wembley Poultry Club.
D. McCulllock, of Mill Hill P.C.
F. Durrans, of Yiewsley and Drayton P.C.
E. Brickwood, of Bethnal Green P.C.
W. Baker, of Hounslow and District P.C.
F. Holbrook, of Hounslow and District P.C.

BEES.

THE INTRODUCTION OF QUEENS.

By E. W. D. MADOC.

One of the most essential factors in the successful production of honey is the provision and maintenance of first-class stock. In the case of bees this is most easily done by introducing a queen of approved strain, because the life of the individual worker bee is very short, averaging only about six weeks in the summer, so that in a comparatively short time the population of the hive will consist entirely of the progeny of the new queen.

The main difficulty lies in getting the stock to be re-queened to adopt the new queen in place of their own.

There are countless methods of introduction, all designed to overcome the bees' natural antagonism to a strange queen ; of these the first of the two following methods may be described as being the easiest from the bee-keeper's point of view, and the second method is perhaps the best and safest, and should always be used in preference to the first :—

When the new queen arrives from the queen breeder by post she will be in a small wooden box with wire gauze over the top, with candy in a compartment at one end of the box, a small hole bored through the box at the candy end will be found full of candy and a piece of cardboard tacked over the hole on the outside.

Go to the stock to be re-queened, remove the old queen, and place the cage wire gauze downwards between two frames of brood, the cage being held near the top of the combs by the pressure of the frames on each side ; in two days time the piece of cardboard covering the candy hole should be removed, and in two or three days after this the candy will be eaten by the bees and the queen thus released. After removing the cardboard from the candy hole the hive should be left undisturbed for at least a week.

To use the second method of introduction, obtain a piece of wire gauze or perforated zinc about six inches long by five wide, and clip a piece about three-quarters of an inch square out of each corner and fold down the edges so as to form a shallow tray. The next thing to do is to get the new queen alone, apart from her escort. I find the easiest way to do this is to go indoors, shut the doors and windows so that the queen cannot escape out of the room, and open the cage near the window, so that if the queen flys out she will go straight to the window, and may be easily caught while crawling up the glass, in a match-box or any suitable cage; I generally use a small tubular cage made by rolling a piece of perforated zinc round a stick about half an inch in diameter, sewing up the joint with strong thread or wide, with a cork in each end to complete the cage.

Having removed the queen from the stock to be re-queened find a comb containing sealed brood and some honey ; if you can find it, a comb on which the brood is actually hatching is best, shake off all the bees and cage the new queen under the "shallow tray" cage made first, placing the cage over a piece of comb containing hatching brood and some unsealed honey, press the edges of the cage well down into the comb all round so that there will be no chance of the queen getting out of the cage or the bees getting in before you come to release the queen in a week's time. After a week has elapsed the queen will be laying in the cells vacated by the hatching brood, she will have acquired the colony odour and be in the best possible condition to be safely accepted, and unless the bees are clustering tightly on the cage she should be released and her movements watched for a few moments to notice the attitude of the bees towards her. If by any chance they are not friendly, she must be caged again by herself and released again a few days later, but she will be accepted almost invariably after she has been caged for a week.

CORRESPONDENCE.—Continued.

RECORDS.

To the Editor of "Eggs."

Dear Mr. Newman,—Mr. Green Wilkinson's White Leghorn pullet certainly made a wonderful record, viz., 103 eggs in 103 consecutive days. (What *months* were these records for?).

You ask, in your issue of the 2nd inst., any readers who have authentic records (especially *official* ones) to come forward if they have any to approach this

My White Wyandotte pullet No. 111 laid 60 eggs in 61 consecutive days, viz.: 30 eggs in November and 30 in December (the dead, dull months of the year) at the Stormont-Belfast Laying Test, 1922-23, and again 61 eggs in 61 consecutive days (April and May), with very good records between. This pullet laid 320 in twelve months at Stormont-Belfast—the highest number ever recorded for a White Wyandotte in any official test, and since then no White Wyandotte has appeared to dispute her title as the "World's Champion Wyandotte!!

I agree with Mr. Frank Snowden's remark (quoted in your issue of the 2nd inst.) that "the highly fecund hen is a much maligned individual."

It may interest breeders of very prolific stock to know that the champion has given me a very *exceptional and unusual* record of fertility. She laid with great persistency of sequence, after a good rest (following her wonderful performance at Stormont), and out of *all* the eggs I set there was only *one clear*, and *one weak* germ, and the few eggs I was persuaded to part with were all futile. This was a most gratifying record, and, I think, a most unusual one. Owing to the long rest she took on her return from the Belfast Test, when she moulted, I have only one early cockerel from her (the hawks took two!), and I have had to disappoint many who are clamouring for her sons, and who "booked" them months ago. Have others found this a wonderful pullet year, I wonder?

To return to the subject of fertility in the highly fecund hen, it may be of interest to breeders to hear fertility results of my hen, No. 114. She gave 279 eggs in 11 months at Stormont Test (she was distantly related to the champion), but has hardly given any fertile eggs, so she has been banished from the breeding pens for ever and a day (called "pens," although all groups are on free range in different parts of the place, as I do not believe in "penning" stock birds, or any others, if stamina and vitality are to be kept up).

These two extreme cases of marked fertility in very highly fecund hens, and the opposite, may be of interest to pedigree breeders.

I am glad to read what you say, viz.: That "there is sufficient evidence that we can breed healthy and vigorous stock from the highly fecund hen, and if we never lost sight of *individual* selection, and our standard is high enough, there seems no reason why we cannot maintain high production, consistent with healthy and vigorous reproduction."

It has taken some time to impress on breeders the absolute necessity of "Individual Selection," and of high standard for stamina-vitality, following on the four winter months' records (at least) in the trap-nests.

I think we Irish pedigree breeders of White Wyandottes may be proud of having bred pullets which have given higher records in the tests than have ever been made before in any Laying Competition.

Yours faithfully,
Mrs. PORTER PORTER.

CO-OPERATION.

To the Editor of "Eggs."

Sir,—I was interested to read Mr. Wait's letter in your issue of the 25th ult., as I also have been surprised that the Lincolnshire farmers have not met together to establish some system of co-operation, and I think possibly it might interest readers to hear of the success of this company.

In this district it was last year considered advisable to co-operate in the buying and selling of new-laid eggs, and this company was then formed, and it has undoubtedly resulted in the prices ruling in this district being higher this year than last—indeed during only two weeks has the price paid to the producer been as low as the Lincolnshire farmers are obtaining at the present time. Had the Lincolnshire farmers some co-operative system, it is probable that the prices here would have been still higher, for we have had to contend with their eggs coming into these markets at an obviously unprofitable basis from the point of view of the producer.

One of the difficulties with which a society of this kind has to contend is the fact that many poultry-farmers will take advantage of the high prices promoted by the Society, by selling their eggs direct to the shops at a 1d. per dozen more than the Society can give them, although that sum is in fact 1d. less than the price at which the Society sells—for the Society has to take 2d. per dozen from the producer to cover its expenses.

Still, on the whole, such a Society is of undoubted benefit to the general producer, and the more such Societies there are in the country, the less precarious will be the position of the industry.

I shall be pleased to answer any enquiries from anybody interested in such a company as this, either from the point of view of starting another such concern or wishing to enlarge the scope of this company by joining its ranks.

Yours faithfully,
G. A. BOOTH
(Director, Huddersfield and District Egg Producers, Ltd.).

PEDIGREE.

To the Editor of "Eggs."

Dear Sir,—Leaving on one side dictionary definitions, the only "pedigree" of practical value is one which gives the record of performance and other data of breeding value in respect of the more recent ancestry of the "pedigreed" bird.

The question then arises: What are the chief data required?

The answer to this would seem to be given most simply in your article, "Breeding for Production," in the current S.P.B.A. Year Book, i.e., Maturity, Winter Laying, Annual Record, etc.

Personally I should consider that the registered pens might be made a basis for genuine pedigree certificates, and if such pens could in future issues of the Year Book be given each a definite number (E.g. WL. 25/7), meaning White Leghorn, 1925 Year Book, Pen 7) the chicks from such a pen could be easily identified.

By mating pullets from such a pen to a cockerel from a similar pen WL. 25/10, the 1926 birds (even though not forming part of a Registered Pen themselves) would be entitled to be considered as "pedigreed" birds.

They could, for easy reference, be described as WL. 25/7 x WL. 25/10.

Is this scheme too complicated?

Yours, etc.,
F. S. MORGAN.

REPLACEMENTS.

To the Editor of "Eggs."

Dear Sir,—In the issue of "Eggs," dated 25/6/24, you ask for details as to cost of replacements on a commercial egg farm.

The following is based on ten years' personal experience with White Leghorns, and, whilst open to improvement, I think may be somewhere near an average cost:—

	£	s.	d.
Cost of 1,000 Chicks at day-old	12	10	0
Cost of Food up to eight weeks	28	0	0
Cost of Fuel to this age	3	0	0
At eight weeks I have usually 600 chicks left, and the cost of food for these 600 for further five weeks is approx.	20	0	0
	£63	10	0
During this period I have sold approx. 300 stags, at average of 1s. each	15	0	0
	48	10	0
Cost of food for further 13 weeks	32	10	0
Proportioned cost of labour for the six months	26	0	0
Depreciation on plant and equipment for the period at 10 per cent.	13	0	0
300 Pullets cost	£120	0	0

or 8s. each, excluding rent and rates.

As to justification of this cost the following figures may be helpful:—

Pullet egg yield, October-September, inclusive averages 150 valued at £1.

Hen egg yield, same period, averages 120 valued at 14s.

The value of the 30 extra pullet eggs, though laid during the high price period, I find do not average more than 2½d. each—some being second grade. The cost of feeding my layers is 8s. 6d. per annum, which shows following figures:—

PULLETS.

	£	s.	d.
Gross profit on egg-production	0	11	6
Commercial value of pullet at end of laying year	0	3	0
	0	14	6
Less cost of rearing	0	8	0
Gross profit	£0	6	6

HENS.

	£	s.	d
Gross profit on egg production	0	5	6
Commercial value at end of laying year	0	3	0
	0	8	6
Less value at commencement	0	3	0
Gross profit	£0	5	6

From above it will be seen that, provided the pullets are capable of filling the winter egg basket, one does not lose by replacing, say, 50 per cent. of stock per annum, but more is inadvisable owing to the heavy depreciation on the birds. I have found 33.13 per cent. replacements to be approximately best working arrangement, as by keeping a layer for three laying seasons, I bring depreciation to approx. 1s. 8d. per annum, instead of 2s. 6d. and 5s. respectively for birds kept two and one laying seasons only.

Yours truly,
FRANK ANCLIFFE.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING FRIDAY, 11th JULY, 1924.

GRAIN and FEEDING STUFFS.—With negligible supplies of home-grown grain on the markets, quotations are practically meaningless. Imported wheat, barley and oats are in fairly good request, with prices of all descriptions showing further appreciable advances on the week. No. 1 Manitoba wheat averages 12s. 6d. cwt., an advance of 3d. on week, and of 1s. 3d. compared with a month ago; Karachi barley, which is the only description now generally available, averages 10s. 2d. per cwt., an advance of 6d. on the week and of 10d. as compared with a month earlier; while No. 2 Canadian Western oats average 9s. 5d. per cwt., as compared with 9s. 3d. which had been the approximate average price for several weeks previously. Argentine maize is again a shade cheaper at an average of 8s. 6d. per cwt., but a fair trade is reported, with a strong demand for forward positions.

Milling offals are in fair request, and on the average prices show a further advance, while as compared with last year there is a substantial difference, bran averaging about £6 10s. and middlings £9 2s. 6d. per ton, as against £5 18s. and £8 4s. respectively at this time last year. Linseed cakes are in request, and again slightly dearer in sympathy with linseed prices. Trade for other cakes is not brisk, but prices, where altered, are against buyers.

MILLERS' OFFALS.—Bran (British): Bristol, £7 5s.; Hull, £6 2s.; Liverpool, £6 5s.; London, £6 10s. Broad Bran: Hull, £7 2s.; London, £7 5s. Middlings—Fine (Imported): London, £9 10s. Coarse (British): Bristol, £9 15s.; Hull, £9 5s.; Liverpool, £8 10s.; London, £9. Pollards (Imported): Bristol, £8 7s.; Hull, £7 5s.; Liverpool, £7. Rice Bran: Bristol, £7 12s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11; Hull, £11; London, £11. Maize Meal: Bristol, £10; Hull, £9 7s.; Liverpool, £9 15s.; London, £10 5s. Maize Germ Meal: Bristol, £10; Hull, £9 10s.; London, £8 15s. Maize Gluten Feed: Bristol, £10 5s.; London, £8 15s. Locust Bean Meal: Bristol, £8 5s.; Hull, £8 7s.; Liverpool, £8 5s.; London, £8 5s. Bean Meal: Bristol, £13 15s.; Hull, £11 8s.; London, £12 15s. Fish Meal: Bristol, £19 10s.; Hull, £19 10s.; Liverpool, £19; London, £18 5s.

EGGS AND DEAD POULTRY.

A steady demand exists for eggs, and higher prices are realised for all descriptions, supplies being short; 1st quality British eggs average 17s. 6d. per 120, against 15s. 6d. last week, while most kinds of imported eggs are dearer by 1s. to 2s. per 120.

Week-end Prices.—British: 17s. 6d., 16s.; Irish: 16s. 6d., 15s. Danish: 18s., 16s. Dutch: 20s., 17s. Russian: 11s. 6d., 10s.; Belgian: 17s., 16s. Italian: 17s. 6d., 16s.; Hungarian, 10s. 6d.; Lithuanian: 14s., 11s. 6d.

Dead Poultry (per lb.)—Fowls—Surrey: 2s. 6d., 1s. 10d.; Irish: 1s. 10d., 1s. 7d.; Others: 2s. 2d., 1s. 7d.; Ducks: 1s. 8d., 1s.; Geese: 1s. 1d., 9d.

EGGS (per doz.).

Ashford: First, 1s. 11d.; Second, 1s. 9d. Birmingham: First, 1s. 5½d.; Second, 1s. 4¾d. Bridgwater; First, 1s. 8½d. Carlisle: First, 1s. 8d. Chelmsford: First, 1s. 9d.; Second, 1s. 7¼d. Denbigh: First, 1s. 8d.; Second, 1s. 7d. Derby: First, 1s. 6d. Dorchester: First, 1st. 8½d. Exeter: First, 1s. 8d. Hereford: First, 1s. 5d. Hull: First 1s. 7d. Ipswich: First, 2s.; Second, 1s. 9d. King's Lynn: First, 1s. 8d.; Second, 1s. 6d. Lincoln: First, 1s. 8d. Llandilo: First, 1s. 3d. Montgomery: First, 1s. 5d. Newport (Mon.): First, 1s. 6d.; Second, 1s. 4d. Norwich: First, 1s. 9d. Oswestry: First, 1s. 7d.; Penzance: First, 1s. 5d.; Second, 1s. 4d. Salisbury: First, 1s. 9d.; Second, 1s. 8d. Shrewsbury: First, 1s. 6d.; Second, 1s. 5d. Skipton: First, 1s. 1d. Truro: First, 1s. 5d.; Second, 1s. 4d. York: First, 1s. 8d.; Second, 1s. 7d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 9d. Derby: First, 5s. 9d.* Second, 3s. 3d.* Exeter: First, 1s. 9d. Hereford: First, 1s. 6d. Ipswich: First, 2s.; Second, 1s. 10d. Lincoln: First, 5s.*; Second, 3s. 6d.* Llandilo: First, 1s. 10d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 5d. York: First, 5s. 6d.* Second, 4s. 6d.*

DUCKS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 1s. 4d. Derby: First, 6s.* Second, 4s. 6d.* Exeter: First, 1s. 7d. Hereford: First, 1s 4d. Llandilo: First, 1s. 10d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 6d.

* Per head.

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS „ „ 1s.
DAY-OLD CHICKS „ „ 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 „ „ „ 4
9 „ „ „ 6
13 „ „ „ 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office **FIRST POST FRIDAYS** for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. **BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS,** for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent **and six penny stamps extra to cover cost of acknowledgment of same.**

PULLETS.

FOR SALE.

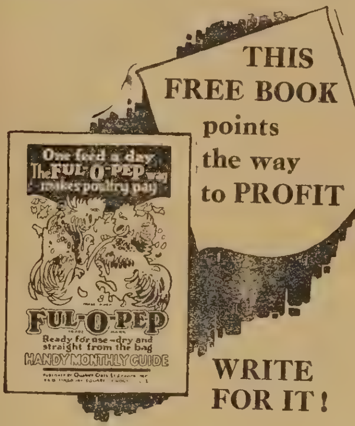
To make room for young stock, can offer 100 White Leghorn, 1922 and 1923 hens, full sisters to my third prize winners, Harper-Adams' Competition: 50s. per dozen. White Wyandottes, Rodwell x Wilson Beatties' strain; 54s. per dozen. R.I.R., Boucher's x Measures' extra special pens; 54s. per dozen. Black Leghorns, full sisters to my birds, now second National, and third Harper-Adams; 52s. 6d. per dozen. A rare chance to start a farm with the best of quality. All birds guaranteed in perfect health These birds are cheap at three times the price as my original eggs cost £3 3s. to £5 5s. per dozen. — Hodkinson, Holywell, Huntingdonshire.

LIGHT SUSSEX.

1924 PULLETS.

Over 400 well-grown Feb. and March Pullets, off free range, from highest class Utility Prize-winning Stock. Approval. 4 months, 10s. 6d.; 5 months, 13s. 6d. delivered.

STONESTILE FARM,
CHARING, KENT.


THIS FREE BOOK points the way to PROFIT
One feed a day
The FUL-O-PEP way makes poultry pay
FUL-O-PEP
Ready for use—dry and straight from the bag
HANDY MONTHLY GUIDE
WRITE FOR IT!

It gives full instructions upon the *sure* way to profit from poultry. Month by month, it details the things to do to make poultry keeping pay, and contains a daily and monthly Egg Chart.

The Ful-O-Pep way—saving time, worry, trouble and expense—puts science on the side of the poultry-keeper. There's no early morning rush. Eggs are making, chicks are growing, profit is piling up before the poultry-keeper is out of bed.

Several days' supply of mash tipped straight from bag to hopper and left: one mixed grain feed daily thrown down at roosting time. That's all: no mixing, no water to heat; no pots or pans to clean. It's easy—and it pays.

To make sure your pullets are growing RIGHT, read the chapter on Rearing in the Ful-O-Pep Monthly Guide. The Guide has illustration and full details of the All-age Self-Feeder.

FUL-O-PEP TRADE MARK
GROWING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE.

Sold only in sealed bags. When buying Ful-O-Pep always look for our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag.

Guaranteed by Quaker Oats Ltd., 11, Finsbury Sq., E.C.2.

PULLETS.

FOR SALE.

Ten L. Sussex, hatched late January, splendid laying strain, 12s. 6d. each. — Cartwright, Welland Valley Poultry Farm, Seaton, Uppingham.

Bostock Smith, Paynter, Light Sussex Pullets; hatched mid-March; milk fed; 6s. each; carriage paid on six.—Smith, Wixenford, Wokingham, Berks.

Rhode Island Reds, four and five months old Pullets; 8s. 6d. and 9s. 6d. each. — Corin, Lawrence Green Farm, Charlwood, Surrey.

Light Sussex, Phillips; White Leghorn, Snowden; 1924 Pullets and Cockerels; 1922 Hens and Cocks. Price list free.—Barrowmore, 4, Great Barrow, Chester.

Barnevelder Pullets (1923); well marked typical birds; 10s. 6d. each. F. Paynter, The Lawn, Lampton Road, Hounslow.

Twenty W. Leghorn Pullets, April hatched; Snowden strain; from trap-nested hens; 8s. each. Ten Ditto, 1923 hatched, 6s 6d.—Jones, Bonnington, Ashford, Kent.

PULLETS, COCKERELS.

RHODE ISLAND REDS.

February-March hatched, all individually marked, from Dr. Baldwin's Registered Pen 1· Leslie Pattison's Pens 3 and 5; own Pen 1 (Registered) and 2. Dams' records 205-270. Price 9s. upwards.—Colonel Clark, Bransgore, Hants.

COMMANDER TIPPET,

Goring Heath Pedigree Poultry Farm, Oxon, offers 150 1923 hatched, trap-nested

WHITE LEGHORN PULLETS,

all L2, of grand stamina, which must be cleared before August. They will make

VERY VALUABLE BREEDERS

for next season. 9s. 6d. each, £5 per doz. Offers invited for quantities.

CAPTAIN STRONG, R.N.

1924. EXHIBITION PULLETS. 1924.

White Wyandottes, Rhode Island Red, Light Sussex, White Leghorns of the leading strains, perfect in type and colour; very hardy, raised on free range, 660 above sea-level; 8s. to 15s.; Cockerels, £1 1s. Vacancy for Pupil. — **Hillerton Poultry Farm, Bow, Devon.**

W. CRABTREE

can supply immediately 1922 W. Leghorns and W. Wyandottes at 5s. each; 1923 **Pullets at 6s., 10s., and 15s. each; and six** months old pullets for August to October delivery at 15s., 20s., and 30s. each; 2s. 6d. per bird deposit with order, all carriage paid and crates free. I have seven pens (56 birds) in the first four positions in the **principal laying trials. — Twiston, Near** Clitheroe, Lancashire.

1924. PULLETS. 1924.

Selected, large, big-framed Pedigree Pullets, from egg record parents, January and February, 1924, hatched. Light Sussex (Russel-Cook), Rhode Islands (Golden-Russel), White Wyandottes (Cam-Barron), all guaranteed healthy; 8s. 6d. each, £5 dozen; carriage paid.—

G. W. BELL, N.U.P.S.,
"Lord of the Manor," St. Lawrence, Ramsgate.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, July 23rd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

OUR PUBLICATIONS.

"ONE-MAN POULTRY FARMING."

By A. H. CAPPER.

In the latter part of last year Mr. A. H. Capper contributed a series of articles to these columns, entitled, "One-Man Poultry Farming." These were highly appreciated by our readers, and there were many requests that they should be published in book form. The Council, enterprising as usual, made arrangements with Mr. Capper, and have now issued it at a price which should be within the reach of all, viz., 1/3, post free.

I need hardly say that they would have not ventured to do this, had the subject matter not appealed to them as practical poultry-keepers. The author is relating his own experience and the methods employed in establishing and running a successful poultry farm. He has worked out his own system, tested and proved it, and is now giving the result of his experience to the public.

In the introductory chapter Mr. Capper asks whether the two branches of poultry-keeping, i.e., Commercial Egg Farming and Pedigree Breeding, can be successfully combined, and he contends that they can be. To some extent we shall be in agreement with him, but one must have a very clear idea of what is meant by pedigree, and as he says, it will not do for the farmer to lose sight of the fact that the "raison d'etre" of his farm is egg production.

In the second chapter he describes his system, and his opening remark at once arrests attention. "One of the commonest mistakes made by beginners is want of foresight in planning their farm. This is so perfectly true, the amount of labour that is wasted because of a bad lay out in the first place is truly awful on some farms, and too often it is not realised until it is too late to mend.

In the next chapter, Housing is dealt with. Mr. Capper describes the Unit House, Fittings, Yards, Brooding Appliances, Incubators, Cockerel Houses and Colony Houses. This is an invaluable chapter.

Chapter IV. deals with the breeding stock, its Management, Handling and Observation and Culling.

Following this we have a chapter devoted to Incubating and Chicken Rearing, which will be read with advantage. Then the Author has something to say on the "Question of Replacements," and I note that he only replaces 50 per cent. of his stock each year, and advances arguments which prove that he has studied this question very thoroughly. Then he deals with the Business Side, which we are not all of us in the habit of studying as we should do. He touches also on Preserving Eggs, Utility Shows, Disease and its Prevention, Finance, and concludes with a plan of his laying houses.

This little book is far more practical and instructive than many which are much more expensive. Like all S.P.B.A. works, it is written by a practical man for practical people. It is the best publication of its type that has been issued for years. The information it contains is presented in a concise manner; the author expresses himself very clearly. I am delighted that the Council decided to publish it, and I am sure that every one of our members will say they have done well in publishing this excellent and practical little work.

("*One Man Poultry Farming,*" by A. H. CAPPER. Published by The Scientific Poultry Breeders' Association, Rudgwick. 1/3 Post Free. From the Publishers).

PEDIGREE AND LINE-BREEDING.

A reader, signing himself "Doubtful," writes:—

> "I have read with interest your leader on Pedigree and Line-Breeding in last week's 'Eggs,' and I am left in doubt. I am not sure that you have proved your case. Line-Breeding has been practised with success, that you cannot deny. Our most successful breeders of laying stock have always been line-breeders. There is no system which will give equal results. Why, then, decry it? It has proved a great success, as I can testify, and is responsible more than anything else for the improvement in our poultry."

My correspondent must pardon me. I did not set out to prove anything. Neither did I decry line-breeding, or attempt to deny that it has been successfully practised. There is too much evidence to the contrary, and one cannot shut one's eyes to facts that are patent to all who use them. What I endeavoured to show was that out-crossing might possibly be practised with equal success to line-breeding without running the risks which are inseparable from the latter system, and I was careful to say that I was not in a position to speak positively. The article was written with the intention of inviting discussion on a subject of interest and importance to every breeder, and, if possible, to obtain some evidence which would be useful.

No one in his senses would deny that line-breeding has led to breed improvement, but while acknowledging that to be the case, we cannot permit ourselves to overlook the fact that this is not because we have line-bred, that is to say, *not because we have mated closely related individuals, but because of the continuous selection of the exceptional individual*, which is so essential if line-breeding is to be practised with success. It is safe to say that failures in line-breeding are due either to the fact that the foundation stock has been but mediocre, or selection has been on a "paper" pedigree, in other words, on the trap-nest record alone

Modern Poultry Feeding.

By TOM NEWMAN.

PULLET FEEDING EXPERIMENTS AT WELLINGHAM.

Miss Malcolm has sent me the results to date of the pullet feeding experiments at Wellingham, which I give below.

It will be seen that Pen. C. more than maintains its lead, the average for the month being 19 eggs per bird; the amount of food consumed by this pen was lower than any other. The bird with the highest individual record is in the control pen, 192 eggs, but there are two in Pen B. with records of 189 each.

It is curious that the control pen should give the most unsatisfactory results. If we can arrange to carry the experiment still further and breed from pullets in "C." pen next season, it would be very interesting to note the effect of the diet on hatchability and rearability:—

PULLET EXPERIMENTS.

"A" (Blue Ring).

Ring. No.	Eggs. June.	Eggs. To Date.
121	23	150
228	—	90
235	17	143
249	2	137
250	23	167
337	23	152
388	10	83
401	23	183
405	5	N.M.111
—	—	128
Tot.	126	1344

Amount Consumed.

Mash: 41lbs.

Grain: 25lbs. 8ozs.

Total: 66lbs. 8ozs.

Total Cost: 6s. 11.1813d.

"B" (Red Ring).

Ring. No.	Eggs. June.	Eggs. To Date.
80	15	128
206	—	41
210	20	121
[illegible]17	22	164
271	23	189
292	22	160
303	15	189
508	21	143
524	22	180
—	—	43
Tot.	160	1358

Amount Consumed.

Mash: 47lbs.

Grain: 25lbs. 8oz

Total: 72lbs. 8ozs

Total: 7s. 4.8079d.

"C" (Green Ring).

Ring. No.	Eggs. June.	Eggs. To Date.
213	16	164
229	13	176
256	20	166
257	23	182
265	3	N.M.156
273	22	178
411	26	179
413	25	151
525	22	163
—	—	74
Tot.	170	1589

Amount Consumed.

Mash: 37lbs.

Grain: 25lbs. 8ozs.

Total: 62lbs. 8ozs.

Total Cost: 6s. 3.9248d.

"D" (White Ring).

Ring. No.	Eggs. June.	Eggs. To Date.
138	9	134
234	18	140
261	27	192
285	4	59
333	23	174
387	—	N.M.153
392	—	N.M.134
394	19	111
—	—	102
—	—	143
Tot.	100	1343

Amount Consumed.

Mash: 38lbs.

Grain: 22lbs. 8ozs.

Total: 60lbs. 8ozs.

Total Cost: 7s. 3.7943d.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale.

(Continued.)

GROUPS VIII. AND IX.

It was very important to know the amount of marmite that must be added to a diet not containing B. vitamin in any of its constituents, because in future work it would then be possible to make up diets, having this amount as the minimum for a comparison of the food value of different proteins.

White rice and fish meal were chosen as the ingredients. The latter, as Cooper (1913-14) had found that white fish had very little B. vitamin. Fish meal, like dried skim milk, provided a reasonable quantity of mineral salts in the food. Cod liver oil, as before, was added to supply A. vitamin, since the amount in the fat of the fish meal could not be relied upon to give sufficient.

It was not possible to choose the right amount of marmite for this diet without reference to the quantities used with the previous groups. Group VII. on a diet containing, from the chemical analysis, 58 parts of combustible food from rice, and 28 parts from the dried skim milk, required 6 g. cerema. Assuming that the dried skim milk balanced itself with B vitamin, a diet containing 58 + 28 or 86 parts of rice would want 6 + 3 or 9 g. of cerema. By using marmite for cerema 9 g. would balance 90 g. rice and a small quantity of fish meal. The diet was composed of:—

White Rice: 90 g.
Fish Meal: 5 g.
Cod Liver Oil: 0.5 cc.
Marmite: 9 g.

It was found previously that excess of cod liver oil in the food wanted balancing by marmite (Groups I. and II.), so in order to determine if the chosen quantity of marmite was correct, the cod liver oil was raised every 14 to 28 days to 1, 2, 3, 4, 5, cc. per 90 g. rice.

Group VIII. consisted of 11 Light Sussex birds, seven weeks old, previously fed upon the rice and dried skim milk diet of Group VI.

On the new diet with the small amount of protein the birds did not grow so rapidly. There was considerable difference in the weights of the birds of the same age and sex. This was especially noticed after the oil was raised to 2, 5 and 4 cc. The birds were then never active, and showed slight signs of leg weakness. All the birds were raised to maturity. One bird had a sort of permanent spinal curvature. The feathering was also very slow and the combs pale. The outcome of the experiment had largely to be judged by the appearance of the birds.

Group IX. consisted of 10 day-old Light Sussex chicks. One bird was unwell on arrival, and died the next day, and can hardly be counted.

No signs of illness were seen for the first 28 days, with 0, 5 cc. of cod liver oil, but then on raising it to 1, 2, 2, 5 and 4 cc. the birds showed leg weakness, pale combs, poor feathering. They were not properly active, and always wanted to sit.

Two birds died, in both cases abnormality of the intestines and connective tissue was found on post-mortem examination.

The growth of the birds was very unequal and the indication of sex was not well marked; even at the age of 20 weeks the sex of two birds was still in doubt. They turned out to be cocks. Another peculiarity was that the cocks did not crow.

Excess of cod liver oil had thus a distinctly disturbing effect upon the growth of the birds. The idea that fat needed balancing is again indicated. It is difficult to prove, but a further attempt is being made.

The result is to show that B. vitamin, measured as marmite, is required to the extent of 9 g. per 90 g. of rice, and 5 g. of fish meal with 0.5 or 1 cc. of cod liver oil. This makes 8.6 per cent. of the food.

THE HULL AND DISTRICT POULTRY SOCIETY.

Thirty members of the newly-formed Hull and District Poultry Society had a pleasant outing by char-à-banc on July 5th to Messrs. M. M. Stamford and J. M. Lamb's farms at Thorpe Gunbolt.

Mr. Stamford has been interested in poultry for twenty-five years, and the breeds he now keeps are White and Black Leghorns, Anconas, Light Sussex and R.I. Reds. The latter are his favourite breed. He is also a breeder of Khaki-Campbells and Fawn and White Runners, and he drew the attention of his visitors to the fact that two of the latter had feathered quite black.

Mr. Lamb is a comparatively new beginner, and his stock consists of White Leghorns, Light Sussex, and R.I. Reds.

The party were generously invited by Mr. Stamford and Mr. Lamb to tea.

The outing was a very pleasant one indeed.

THE LANCASHIRE UTILITY POULTRY SOCIETY.
INTERNATIONAL EGG-LAYING TEST, 1923-24.

REPORT OF THE NINTH MONTH—MAY 27th to JUNE 23rd, 1924.

The 23rd June closed the ninth monthly period of the test, during which the light breeds have again done well. The heavy breeds, being affected with broodiness, have not done so well as in previous months. The pen of Australorps are doing well, as also are the Barnevelders and Blue and Black Mendels.

Mention may be made of Pen 22, Large Breeder (Allen Bros., Harrogate), with a score of 239, in which three of the birds laid 28 eggs in the 28 days.

SUMMARY OF LEADING PENS.

Heavy Breeds, Section 2. Large Breeders (10 Pullets).—1, Rodwell, R., Nelson, 1,751 eggs; 2, Crabtree, W., Twiston, 1,649 eggs; 3, Rogers, W., Market Drayton, 1,529 eggs.

Light Breeds. Section 1. Large Breeders (10 Pullets).—1, Snowden, F., Cowling, 1,638 eggs; 2, Metcalf G. B., Lechdale, 1,566 eggs; 3, Aspden, R. H., Balladen, 1,599 eggs.

Heavy Breeds. Section 4. Small Breeders (5 Pullets).—1, Helm, J. E., Rossendale, 780 eggs; 2, Purdie, J. and W., Lanark, 881 eggs; 3, Greenall, S. and J., Carlton Scoop, 757 eggs.

Light Breeds. Section 3. Small Breeders (5 Pullets).—1, Budd, C. F., Abergavenny, 918 eggs; 2, Paul, Miss A., Coupar Angus, 878 eggs; 3, Purdie, J. and W., Lanark, 833 eggs.

Heavy Breeds. Section 6. Open (Single Bird).—1, Cook, R. N., Tarleton, 186 eggs; 2, Crawford, J., Hurlford, 187 eggs; 3, Rainford, J., Penwortham, 171 eggs.

Light Breeds. Section 5. Open (Single Birds).—1, Wallis, A. V., Oxon, 182 eggs; 2, McComb, J. S., Bracknell, 175 eggs; 3, Atkinson, T., Burton-in-Lonsdale, 170 eggs.

Heavy Breeds. Section 8. Novice Breeders (4 Pullets).—1, Miss, R., Penwortham, 639 eggs; 2, Marsden, G. E., Lostock Hall, 637 eggs; 3, Halsall, J., Newton, 628 eggs.

Light Breeds. Section 7. Novice Breeders (4 Pullets).—1, Sharpe, T., Dumfrieshire, 684 eggs; 2, McCoomb, J. S., Bracknell, 673 eggs; 3, Winward, W., Bamber Bridge, 624 eggs.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Barnes (E. Somerset). There are many reasons why your young stock may "hang fire," but I gather from what you tell me the chief cause is "stale" ground, and that the best thing to do would be to move them on to a fresh piece at once. As you say they are an uneven lot, it would be a great help if you were to grade them, so as to give the smaller ones a chance. If breeders only realised how much is gained by careful grading of growing stock, they would surely pay more attention to it. As to feeding, give them one meal of the following per day, cover a sufficient quantity of good white oats with cold water, cover up and allow to simmer on the fire until the water is absorbed, then dry off with equal parts good middlings and bran and feed. As you have not much skim milk give it to the lower grade birds, tonics will not help. All the birds want is good feeding, fresh ground and well-ventilated houses. Whatever you do avoid overcrowding.

Riddeings (Cheshire). Please read reply to Barnes; it applies in your case. You have overcrowded the ground. (2) In-breeding is line-breeding carried to extremes. There are three forms of it—the dam to her son, the sire to his daughters, brother and sister. If you follow Felch's chart you would be in-breeding in the two first forms to begin with; the chart only shows you the degree of relationship. No, I would not advise anyone to mate on these lines or breed by chart. You must study the individual; the degree of relationship is of lesser importance than the question of the fitness or unfitness of the individual. If you are line-breeding you must always be on the look-out for any signs of weakness. You cannot say definitely when new blood should be introduced. That is all a matter of observation, not of mathematical calculation. Directly you see any sign of weakness then it is time to act. The first sign would be smaller eggs, then lower fertility, then poor hatchability. (3) Yes, some attempts were made to "make" the Rhode Island Red by crossing the Buff Rock and Red Sussex.

J. M. (Burdon). I cannot tell you whether it will be worth while keeping the breeding pen again, as the only details you give are that hatchability and rearability has been "top hole." The deciding factor will be the manner in which the pullets perform. You had better wait until the end of November before you make up your mind. If they lay well during those two months, then you will have no further doubts as to whether you should keep the breeding pen intact. (2) The quantity of fish meal you are feeding is very excessive, and if you continue it will have injurious results. Reduce it by one-half. (3) Whatever you do, do not attempt to check the pullets which are reddening up by reducing the quantity of feed. Replace the maize in the mash with ground oats, and as grain feed give good oats and wheat in equal parts. The cockerel which is "in-kneed" would be no good as a breeder, better cook him. (4) The continuous colds must be due to faulty ventilation of the house. If you will send fuller particulars we will try and advise you.

K. E. D. (Durham). Of the samples you send, the one which seems most likely to have caused the trouble is the wheat. This shows signs of mould, and possibly in bulk it is considerably worse than the sample. It would not be advisable to use any more of it without first cooking it in boiling water. (2) It would be a very good plan to go through the flock now and discard all those birds which have ceased laying or are about to do so. Of course, this would not apply to the lot which have been upset by the wheat. (3) I don't see much future for the Black Wyandotte. It is not a breed I could advise anyone to start with. It was made in many different ways. Black Rock blood was used by some breeders, and there were also crosses betweeen the Partridge and Silver and Silver and White.

F. (Warwick). Yes, your pullets have done really well, and if you select them carefully you should have some excellent breeding stock next season, but be wise and don't select on the trap-nest record alone, as this is to be your foundation stock, and any mistakes you make now you will pay for after. Reject any that are undersized, or which lay small eggs; make your standard a high one; it is most important you should do so now. So many people make a mistake by yielding to the temptation to include a few duds in order to "make up" a breeding pen. No, I would not use the cockerel. The dam's winter record is hardly good enough. It would be much wiser to go to Miss Ransford again. (2) The meat and bone meal is a very good sample, but the fish meal is "smelly," and contains an excess of oil. It is only fit for manure.

Puzzled (Hereford). It would have been so much wiser had you sent some of the chicks to Capt. Leeney for post-mortem examination. The symptoms you describe are common to most forms of sickness. All chicks have drooping wings when they are ill; diarrhoea may be caused by many things. I really can't help you, and I might "guess" many times without hitting the mark, besides I don't like guessing, it is generally misleading. (2) As you are a beginner, you have done very well indeed on the whole, and should not be discouraged by your recent losses. Your feeding is correct, except that for your growing stock it would be wise to replace one half of the maize meal with Sussex Ground Oats. Much maize is not suitable for young growing stock. I like the design of the house very much, and you have reason to be proud of your first attempt. As you say, the one fault is that you have the perches too high. I should drop them at least 12 inches.

Keen (Leicester). So very thoughtful of you to put your queries so concisely in order to save my time, but would you add to your kindness next time by writing them in good black ink. They are terribly difficult to read when written in indelible ink pencils on thin paper. Now in reply (1) The May hatched White Wyandotte cockerels will be no use for breeding purposes next season; better fatten them for the pot. (2) Your friend who "knows" has much to learn. The appearance of the single combs is not due to dry mash feeding. You will be wise not to listen to the advice of a man who talks such arrant nonsense. Neither has the date of hatching anything to do with it. It has all been explained in "Eggs" before. It is a case of reversion. (2) You should not breed from such birds. (3) You should not breed from the hen which has been broody so frequently; no matter how you mate her she will transmit this trait to a large percentage of her progeny. (4) The house, 12 x 10, will accommodate 35 Leghorns. (5) This hen has a broken down abdomen. She will be useless for breeding purposes. (6) It is no good putting rock sulphur in the drinking water because sulphur is not soluble in water. (7) It is not a wise plan to give birds Epsom Salts once a week; reserve them for sick hens. (8) The blood in the droppings is caused by the excessive amount of fibre in the mash. Omit the clover meal, which is unnecessary to use when there is so much fresh green food available, and get a better sample of ground oats. There has been ground husk added to this. (9) You would be far wiser to stick to two breeds, as you have not too much room, and are only beginning. It is far better to specialise. (10) All the samples are good except the ground oats and clover meal. (11) The Buff Orpington would be the best duck for your purpose. (12) I do not like the hover you mention, it is truly a death trap.

Dev. (Okehampton). The dark substance taken from the white of the egg which you send is coagulated blood, probably due to the rupture of a small blood vessel in the oviduct. It is not likely to have injured the hen, nor it is due to the feeding. You will find the other eggs quite normal. (2) You cannot tell whether a freshly-laid egg is fertile or not. The white spot, to which you refer, is the germinal disc, and is the contribution of the female. It does not indicate that the egg is fertile. (3) If your Wyandottes lay eggs so small that many are unsaleable, your best plan will be to get rid of them. It would take some time to eradicate this trait by breeding. You might mate them to a cockerel from a large egg dam, but this is very disappointing, as a large percentage of the progeny will follow their dams.

B. H. P. (Lanivet). With regard to the excessive yellow fat in the heavy Barred Rocks. There is always a tendency to this in old birds which are not producing eggs, and your formula, consisting as it does, of biscuit meal, Sussex ground oats, and one of the flaked cereals is much too fattening. I suggest that you omit the Sussex ground oats and the flaked cereal for the present, and reduce the fish meal by one half part. Give the birds plenty of scratching exercise in the morning, and do not give the mash till later in the day. This will be the best way of reducing the fat.

T. S. R. B. (Otford). Ground oats are good, bran only fair, maize meal very good, middlings inferior, contain too much bran. A formula for laying stock by measure would be: 10 measures of bran, 6 middlings, 1½ maize meal, 1½ ground oats, and 1 fish meal. With regard to seasonal adjustments. It is not a question of seasons. You must learn to adjust the mash by the condition of your birds. If, after heavy laying, you think they are on the light side, then decrease the amount of bran. If, on the contrary, they are on the heavy side, increase the amount of bran. You could replace the maize meal by pea meal occasionally. Yes, it is possible to rear and maintain laying ducks on dry mash. Some of our readers have written to say they have done this, but I have not space here to devote to the routine. Dry mash formulas used for growing stock and laying hens are also suitable for the laying duck.

"Wounded Colonel" (High Halden). With reference to the recipe you mention, the cost of this would be so excessive that I cannot see how you can possibly hope to rear profitably for table poultry. I would suggest that instead of the pin-head oatmeal and the dried skim milk, you use equal parts of fine white middlings, and a good sample of Sussex ground oats, and add to this 2 per cent. of dried yeast, and mix the whole with skim milk in its liquid form. If you can provide the skim milk to drink this will also be of great assistance. We obtained, in the Wellingham experiments, results quite equal to your friend's by using two-thirds fine white middlings, and one-third dried skim milk, but this is too expensive for economical rearing. If you can obtain early hatched Light Sussex pullets a 1924 Game cockerel would be rather better than a 1923 bird, provided you can get one hatched early enough.

"Pipped" (Moseley). You are writing as a disappointed poultry-keeper, and I gather from your letter that you had none too many eggs from your birds during the winter months, but spent the time in preparation for the spring, and were rewarded with fairly prolific laying from April to June. That in June all the birds went off again to one egg to every half-dozen fowls, and with apparently no reason, unless it is that half of them are broody, and the other half began to moult. Well, now, we have only two conclusions which we can arrive at. Either you have very poor stock, or your management is bad. Certainly if your birds are in normal health they should not be moulting so early as June, but let us look at your feeding. You begin with one handful each of wheat and oats raked well into the litter, and then they get nothing else until between five and six o'clock, except some green food; then they have a mash, which consists of 3/6 bran, 2/6 sharps, 1/6 barley meal and fish meal, and the barley corn and barley have been dropped through the summer. Well, I think it is to the feeding that we must look for the moult and the poor egg production. In the first place, even during the summer months a mash composed chiefly of bran and sharps with a percentage of fish meal, is not good enough, especially as wet mash, and you say you give only one handful each of this. The whole fact is that you are seriously underfeeding your birds; that they do not lay in the winter months because they do not have enough food, that they laid for a short time during the spring, and eventually stopped short, because they had exhausted the body fat in the manufacturing of yolks, and, being underfed, could not continue. Now make your mash of: 1lb. bran, 2lbs. sharps, 1lb. biscuit meal, 1lb. Sussex ground oats, and ½lb. meat and bone meal. Give them 2ozs. of this weighed dry, preferably, for the morning meal. At mid-day give them a small feed of grain in the litter, and at night give them a handful each of equal parts kibbled maize and wheat, also in the litter. This should help to get your birds through the moult, and if they are really good stock, and you say that you bought them from a breeder of repute, then, possibly, they will pay you in the autumn, if properly fed. I think your misfortunes are due mainly to the fact that the birds have been under-fed.

"Beginner" (Bentley). This question of feeding birds through the moult has been frequently dealt with in "Eggs" of late. On no account must you keep them on short rations. How can you expect feather to grow if birds are starved? On the contrary, feed them well, and if they hang in the moult add 5 per cent. linseed meal to the mash. There is no occasion to change it in any way. The best grain to give will be kibbled maize. Those which are moulting are probably your worst layers. Moulting birds should be sheltered as much as possible from the hot sun. Give them plenty of fresh green food in addition. They will come through it without any trouble, provided they are in good condition when they start to moult. You will certainly prolong it if you underfeed them, or keep them on short rations.

E. H. R. (Ringwood). These are not red mite, but the ordinary common or garden-lice, which are always to be found in dirty houses. If you thoroughly spray out the Sussex ark and clean it, I do not anticipate you will have much farther trouble, but please do not send anything of the kind to this office again as they are not pleasant visitors.

"Fortune" (Axminster). The charge of 7s. 6d. for the loan of a broody hen is very excessive, and provided you return the bird in good condition, unwarranted. Of course, there is always the law of supply and demand, but you should be able to borrow a broody hen for 2s. 6d. I can imagine if you pay such prices as this your broody hens would be a very heavy charge, and those who have them for such must find it a very profitable occupation.

W. J. (Stevenage). The sample you send is not Maize Gluten Meal, but maize flour—a totally different thing. It would have about the same value as maize meal, but would be worth a little more money.

POST-MORTEMS.

H. R. The post-mortem on the Black Leghorn hen showed an intense inflammation of the pleura and pericardium, the lungs themselves being unaffected. This condition is strongly suggestive of salt and alkali poisoning. Is it possible that this hen and the other that died under the same circumstances, could have gained access to salt or some artificial manure containing alkali? The dry mash may also contain an undue proportion of salt which is not only necessary to fowls, but except in small quantities, actually poisonous.

J. R. T. All the six chicks examined post-mortem were suffering infectious catarrh, general debility, and in two cases pneumonia. They were also infested with worms, which added to the debility, and made them easy victims. For the present, until they are a little stronger, we should advise the continuance of the tonc, with a generous diet, preferably Mr. Newman's formula, as their "pot bellies" suggest that they were constitutionally feeble, and had not been able to assimilate properly.

Major E. G. S. The post-mortem on the two pullets showed the cause to be general debility and toxaemia, due to heavy infestations of tape worms. Long portions of the bowel of one of the subjects were impacted with the worms, and the inflammatory products resulting. Their associates should be fasted for twenty-four hours, and then given two grains of kamala per head, in a small mash, so that they will be sure to clean it all up.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

POST-MORTEMS.—IMPORTANT.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

SKIN TROUBLES.

The season has come round again when the external parasites seriously interfere with the welfare of our flocks, and actually lead to their death from the sleepless nights and days of irritation endured, where the necessary precautions have not been taken.

I am painfully reminded of the fact by swarming poultry lice making me scratch like a mangey dog, although I can't kick my ear with my hind leg, and lay the foundation of canker. Daily we receive birds for post-mortem examination swarming with countless myriads of parasites, which are so light in weight that the opening of a parcel is sufficient to make them fly like thistledown in a gale.

Such a state of things is very discreditable to anyone with the affix of M.S.P.B.A. to his name.

It was said in connection with the internal parasite causing gapes that an understanding of the life cycle enabled us to attack the enemy at his weakest moment, but skin parasites may almost entirely be excluded from the well-managed yard, except, perhaps, during about six weeks of the year, when extra vigilance should be exercised.

Of insects and arachnida there are over thirty species known, and there are probably more to be identified.

The importance of knowing their habits may be illustrated by the conduct of the little red mite which seeks the fowl at night to feed and spends the day in the shadow of the perch or the safe retreat at its end. Those carried throughout the day are not there intentionally, but have been caught napping by the early bird seeking its breakfast after a much-disturbed night. Does not this habit point to the utility of house disinfection, and incidentally advertise the sellers of creosoted wood or houses otherwise made uninhabitable to the species? What usually happens is for birds to get into a very bad state, and then the owner dips or powders their skins, and replaces them, where they will be immediately reinfested. Such dippers speak of the preparations supplied as being "no good."

The habit of the louse is just the contrary. He stays upon the host in general, but enough stray into the nest and lay up in the cracks and crannies of the house to ensure re-infestation when the poultry-man has taken much trouble to destroy those on the body. Their manner of taking nourishment also differs, some being content to eat the epidermis which is always being cast off, as with ourselves. Some of the lice do this, and are content to be fellow boarders with other parasites, such as the red mite. The true scabies disease which corresponds to the worst form of mange in quadrupeds is caused by a parasite which bores under the skin, and makes galleries, where the deposited eggs are fairly safe from ordinary washes or dips, although the female in the gallery may be killed, and the lordly male disporting himself on the surface, will be the most likely to perish, even with the most perfunctory skin dressing. Those which cause scaly leg are easily enough disposed of before the great horny scales offer the sanctuary of a forest in which to hide, and a fortress from which to emerge when the indifferent performer has sloshed over some disinfectant, and only destroyed a few stragglers. The bulk have dug themselves in, and thrown up breastworks of debris consisting of their own waste and the morbid material they give rise to by a low slow process set up in the true skin and the underside of the horn scales. Great masses of a greyish material then secure them from all ordinary attack.

Very few owners of live stock seem to realise the importance of sleep. "Sleep is as important to the normal physiology of a bird as it is to that of a man," a point worth the consideration of those who advocate the use of artificial light to enable laying hens to shorten the winter night, and force from the birds a few more eggs at the expense of their lasting vitality. The latter class would be convinced if they saw the number of failures directly due to artificial forcing which come to my dissecting table, when they should be only entering upon the best year of their lives. While on this subject of sleep, I would ask: Why do March chicken, enduring what is one of the worst months in the year do better than those hatched in the warmer days of May and June, when there is more natural food to be picked up? Although the most advanced physiologist cannot really tell us what sleep is, we all know its effects, and some of us know what the meaning of insomnia is. The bird infested with skin parasites does not get enough sleep. The best observers agree that badly infested birds are not only robbed of their blood, their tissues, and their sleep, but that they make less growth and produce fewer eggs on a ration that is ample for clean birds to thrive upon. Their economic importance is, therefore great, and well supported by experience.

The poultry-keeper need not be able to identify the 30 odd species, but by having a general understanding of their habits, such as have been alluded to above, he will be convinced of the importance of thoroughness, both in the house and in the "person" of the fowl when measures are undertaken for the destruction of external parasites of all kinds. Most of the poultry books written by scientists prove disappointing to the fowl-keeper, because they give infinite details as to the structure of the various pests which have been so laboriously mounted and microscopically examined and described, but when it comes to the commonplace needs of a wash or bath, or methods of destruction in houses and equipment, the advice is only of a general kind, which the poultry man fails to translate into action.

We may not be able to offer him a cure-all, but if space can be afforded next week, we propose to give a few useful recipes, and some hints of the manner of application, while not assuming that every smallholder and back-yarder has all the most modern equipment which so facilitates the hunting down of enemies which "lurk privily as those that seek after blood."

Correspondence.

SHEEP AND POULTRY.

To the Editor of "Eggs."

Dear Sir,—I have many times wondered how it is that sheep receive so little attention from poultry-keepers. We have splendid articles of Fruit Growing and Bee Keeping, but never a word about one of the most useful animals we possess.

There are many people who have anything up to an acre of grass penned off. They have, perhaps, never had anything to do with the farm stock, but I can assure them that with good management they are both very profitable, interesting, and would keep their pens in splendid order.

Of course, I am meaning men who keep fowls in decent runs, where the grass grows up to be a trouble. To feed corn in long grass for hens to scratch for is a waste of good grass that could be made profitable. It should be fed in scratching sheds.

I know what sheep can do, as every item on the farm I have at present is kept separately, and the sheep have done well.

If it is a man who keeps poultry as a hobby, he can keep sheep likewise.

I might say there is a great shortage of sheep, so they will hold their prices for many years yet.

Yours truly,
"INTERESTED."

PEDIGREE.

To the Editor of "Eggs."

Dear Mr. Newman,—I think from your remarks on pedigree that after all our opinion diverge but little. Just one point I would like to mention. In my fifth paragraph you have it said: "Cross-breeding involves the *completion of good* pedigree." This should read: "The complete destruction of good pedigree." Your following notes concerning this I will pass over by saying that you are using the word pedigree in the wrong sense. I still stand by that which I first stated. You cannot destroy a pedigree, unless you tear it up and burn it. You cannot destroy the chances of the offspring doing good, but the pedigree still remains intact, but added to.

I do not think we can get any further than my last paragraph. When I was breeding layers I used to have a pedigree book and a history book. The pedigree book had nothing in it, but a plain straightforward genealogical tree of each bird. Each tree was numbered with the same number as the ring number of the bird referred to. The trees in themselves were nothing but lines and numbers, in red, black, and green. Red, cock; black, hen; and green equals reference page in history book.

The history book contained a lot. I will not say it was always useful, yet it was interesting. Writing from memory the books are still at Bingley, the book was ruled in columns for the following data: Breed, colour, number, sex, etc., of the bird (each bird has a page), where it is to be found in pedigree book. Date hatched, and disease during rearing, date of first egg, number of eggs in 12 months (counted from date of first egg), number of eggs below 2ozs., number laid in three winter months. Date first eggs set for hatching, number fertile, number hatched, number matured, pullets, cockerels. In the remarks space at the bottom the cock's ring number and his reference in the pedigree book was entered, and anything else that might be useful.

Thus I was able to show at a glance what a bird was, how it came, where it came from, what it did whilst here, and where it went to!

I hope to read later in "Eggs" that this meets with your approval. I can see myself reading that you say "that is a pedigree coupled with information that a poultry-breeder wants." I might just add that my wife is carrying on in practically the same way with breeding exhibition bantams, though, of course, it is not so elaborate.

Mr. Ernest M. Marshall will probably realise from the above that he is making rather a rash statement when he says "there is no such thing or person as a pedigree breeder." It is still possible to introduce an "out-cross," and still go on with the pedigree. And don't be so sure about the in-breeding, Mr. Marshall.

There are plenty of birds doing well in laying competitions to-day, which are the result of years of line and in-breeding, and they are not on the downward grade. Some will agree with Mr. Marshall, I know, but let him ask the breeders that can get into the positions they wish to be in at the tests year after year. I warrant they won't say by "out-crossing."

G. R. POOLE.

Mr. Poole misses the point altogether. If Major Lethbridge had merely wanted a dictionary definition of pedigree he would not have written to "Eggs." We did not say that it was not correct definition, but that "it did not help us." Perhaps Mr. Poole will realise that the literal definition is not always the acceptable or the accepted one. As we said before, if we breed for and establish a specific character, and pedigree is based primarily on that character, and if by out-crossing we introduce other characters which dominate it, then the pedigree is destroyed, for it depends on that specific character, and if it becomes a secondary one, we cannot re-establish it when it is dominated by others. (Editor).

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

EDITORIAL.

NATIONAL POULTRY PARLIAMENT AT SALISBURY.

The Fifth Annual Meeting of the National Poultry Parliament was held at the Council Chamber, Salisbury, on Tuesday and Wednesday, July 15th and 16th. There was a good attendance of delegates when the President, Mr. Stanley Street-Porter, opened the proceedings. The delegates received a very hearty welcome from the Mayor (Councillor R. Bracher) and the Corporation.

The Mayor said he had very great pleasure, on behalf of the Town Council and the citizens, in offering the delegates a most cordial welcome to that beautiful and ancient city. He understood that this was the first occasion on which the National Poultry Council had held its Parliament in the South-West of England, and that fact was an additional reason why they appreciated the honour the Poultry Council had done them this year in selecting Salisbury as the place of their annual meeting. Salisbury was a very important agricultural centre, and he was sure that the discussions which would take place at their conference would do much to encourage and develop the poultry industry in the district. That there was room for such development, not only in the county but in the country, was apparent from the fact that this country imported about 13 million pounds worth of eggs every year. That seemed to be a matter which should be the concern of all those interested not only in poultry keeping, but in agriculture, because it seemed to him that the 13 million pounds should go into the pockets of our own people, instead of being sent abroad. If they desired to increase the sale of poultry—and he had gathered from one of their magazines that propaganda was to be formulated with that object in view—they must produce better specimens of poultry, for at the present time they did not really come up to standard. A greater amount of attention must be paid to the fattening of fowls for the table. He trusted the conference would be a great success, and that the delegates, by combining business with pleasure, would thoroughly enjoy their visit and carry away to their homes the happiest recollections of their visit to Salisbury. (Applause).

County Council's Interest.

Mr. Frank Stevens said he thought a worse man than he could not have been chosen to represent the Agricultural Committee of the Wiltshire County Council, because he had many hundred birds in his care which never laid an egg and several hundred eggs which never hatched. (Laughter). But for all that one felt that in an agricultural district like Salisbury such movements as that of the Poultry Parliament were bound to be very fruitful. He understood that last year 145 million eggs were imported into this country from Holland. What struck him as being more remarkable than the number of eggs imported was the fact that those eggs fetched in the English markets one shilling more per ten dozen than English produced eggs. Why, he asked, could not the English producers get that extra shilling? He could assure them that the County Council had the greatest interest and the greatest sympathy in all the Council's fortunes. The County Council, he believed, subscribed to central poultry organisations, and he thought he was quite safe in saying that no Geddes Axe was big enough, and no economy "stunt" large enough to wipe out those subscriptions.

Profitable Poultry Keeping.

The President, after acknowledging with gratitude the representative welcome which had been accorded the Council, expressed appreciation, on its behalf, of the work which had been done in Wiltshire by the County Council. In Wiltshire there was a county poultry instructor, and there were laying trials in progress. In view, therefore, of the light which had been thrown on poultry keeping in Wiltshire, he was rather surprised that Mr. Stevens should have to make the lamentable remark that he had hundreds of birds that did not lay eggs. (Laughter). Might he commend Mr. Stevens to that department of the County Council which he represented, and express the hope that when next they saw Mr. Stevens they might have from him a very much better report. (Renewed laughter). No form of agricultural endeavour would pay a better profit, especially in a dairy county such as Wiltshire, than the production of eggs, if properly managed. It was possible, and in fact highly profitable, to run up to 80 or 100 birds per acre on grass land, and by proper breeding and careful attention to produce £25 an acre with the sale of the commercial egg alone. They believed that as good an egg could be produced in this country as anywhere else in the world. (Hear, hear). But where, in the main, Holland and Denmark had the advantage over England was that in those countries instead of the eggs not being dealt with in bulk, as was the case in England, they were handled co-operatively for the purpose of exporting. English egg producers did not object to foreign eggs entering the English markets and commanding a better price than the home-produced eggs if the foreigners achieved this end by doing their job better than the English. But the English breeder felt that the cheap grade of foreign egg should not be mixed with the English new-laid egg, and sold to the public at two or three times in excess of its actual value. (Applause).

An adjournment was made by the delegates to the Oak Court, where the business session was held. The President said that last year, when he took office, he felt that within a short time they would, after years of work, bring the Merchandise Marks Bill into law. He thought most of them knew that was a measure which he, personally, had very greatly at heart. As they knew, Parliament dissolved, and the Bill was thrown to the ground. The fact that the Bill had not been passed during his year of office was a great disappointment to him personally, and, he was sure, a great disappointment to the National Poultry Parliament as a whole. He trusted that the present Bill before the House of Commons might be carried, although he was not particularly hopeful of it. At all events, they could not tell what might happen politically, and it might be Mr. Newman's good fortune, during his year of office, to see the Bill made into law.

The annual report of the National Poultry Council (read by Mr. Edward Brown) stated that one of the most important points to which a large amount of attention had been given during the past year, and which had involved a great deal of correspondence, was the claim made by the Inland Revenue that poultry farmers should be assessed under Schedule D., that was upon the basis of profits, and not as other farmers under Schedule B. (rental). It was satisfactory to record that in the majority of cases special and local commissioners had decided that poultry keeping was husbandry within the meaning of the Finance Act, and, therefore, that poultry keepers should be assessed under Schedule B. In some cases, however, an opposite decision had been given. The National Poultry Council had endeavoured to get one of these cases carried to the High Court of Justice, but, up to the present time, without success. It was recommended to poultry keepers whose operations were upon a sufficiently large scale, that they should appeal to the special and not to the local commissioners. The main difficulty, however, would be with those who were working upon a more limited basis. It might be reasonably anticipated that farmers would obtain ultimately full justice in this direction. The question of rating was much more satisfactory than a year ago, having been helped by a decision in a case in which a Yorkshire farmer was involved and on whose behalf the National Poultry Council appealed. A decision was then given to the effect that the land occupied must be assessed as agricultural, that was at one-quarter the full rate charged in the district. This decision, it was believed, would settle what had been a very troublesome matter in many districts. Owing to the congestion in Parliament, the prospect of the Merchandise Marks Bill becoming law was at present not very promising. Unless poultry keepers in all parts of the country brought pressure to bear upon their M.P.'s in support of any action that might be taken by the National Poultry Council, the hopes of the poultry industry might again be disappointed. Proposals were being considered by a special committee as to what steps could be taken for increasing the consumption of eggs and poultry, especially during the periods of maximum production.

The balance sheet, presented by Mr. A. H. Brownson, showed that during the year ending April 30th, 1924, a deficiency had been reduced from £206 17s. 9d. to £111 5s. 3d.

The report and statement of accounts were adopted, on the motion of Colonel S. Sandbach, of Abergele, North Wales, seconded by Mr. E. Collier, Ingol, Preston (the Council's auditors).

The afternoon session was held in the banqueting hall, which was well filled. The President was in the chair, and addresses were delivered on "Problems of Heredity," by Professor Punnett, and "Some Phases of the Poultry Industry," by Mr. P. A. Francis, the Poultry Commissioner (we hope to report these addresses next week). They were listened to with keen interest by those present.

The proceedings were opened on the second morning with the installation of the new officers. The President announced that the following gentlemen had been elected without opposition:—

Vice-President: Mr. Clem Watson.
Treasurer: Mr. A. H. Brownson.
Auditors: Messrs. E. Collier and Col. Sandbach.

Mr. Stanley Street-Porter then installed the new President, Mr. Tom Newman, who had a very cordial reception.

VOTES OF THANKS TO RETIRING OFFICIALS.

Proposed by Mr. J. G. Kitson, seconded by Mr. W. Hamnett: "That the delegates attending the National Poultry Parliament hereby tender to Mr. Stanley Street-Porter, the retiring president, their warmest appreciation, and that of the Poultry Industry as a whole, of the great service which he has rendered during his year of office, and his strenuous labours on behalf of the National Poultry Council in many directions, the results of which are seen in the position which it now holds. It is their earnest hope that he may long continue to give his help and co-operation in this field of production.

"They further desire to express their sincere and unbounded thanks to Mr. E. Brown and Mr. A. H. Brownson for their services as secretary and treasurer, which have demanded so much of their time and thought, and which have been so contributory to the success of the Council, and satisfaction that they are ready to continue in their important offices; and to Mr. E. Collier and Col. Sandbach for their work as auditors." In so doing he briefly recounted the splendid work which each had done, and further congratulated the new president on attaining the highest honour the Poultry Industry could offer any man, and wished him a very happy year of office.

Mr. Edward Brown presented apologies from Mr. Clem Watson, the Vice-President, expressing regret at his absence. He went on to say that the Council had made history. A great meeting would shortly be held in Chicago to consider the formation of a Poultry Council for America. The Congress in Spain had led to many inquiries from other nations, who were deeply interested in the effective organisation of their industries, and who had expressed their surprise at what this Council had been able to effect. They were acknowledged as the pioneers of National Poultry Councils, and were looked up to and respected.

Mr. Stanley Street-Porter, Mr. Brownson, Colonel Sandbach, and Mr. Collier briefly returned thanks.

PRESIDENT.

The President, after warmly thanking the members for the great honour they had done him in electing him, said that he fully realised the responsibility of his position, which was not rendered the easier because of the high standard set by his predecessors in office. That standard he should endeavour to live up to. He heartily congratulated Mr. Street-Porter on the record achieved during his year of office. The improved status of the industry was a matter of congratulation to them all. They were no longer the Cinderella of Agriculture. They had found the glass slipper, but they must remember that glass was brittle, and they would have to tread warily, striving always to be statesmen, and not mere politicians. He supposed that a new President would be expected to have a programme, but he had nothing to offer. They had problems before them which would fully occupy their attention, and programmes were not always carried out. There was, however, one point of great importance. They would remember the memorable address by Mr. P. A. Francis, at Bedford, on his return from his visit to America. He had told them that there was no country like England, none in his opinion, so favourably situated for successful poultry-keeping, none so highly organised, and yet in spite of the fact that in America, land, food, labour and appliances were dearer, they not only ran their farms profitably, but were able to transport eggs and poultry produce fully 7,000 miles, and were able to undersell them in their own markets. He hoped they would consent to the appointment of a committee to investigate this problem, and to try and discover where the leakage was. He thought that was well within the scope of the work of the Council. Foreign competition was becoming keener, and was likely to be still more so, and the position at home was not becoming easier. They must look ahead, years ahead. The question they must ask themselves was whether they were making the most efficient use of their organisation. He expressed regret that the Merchandise Marks Bill had not been placed on the statute book. It was a great disappointment to every one of them that this had not happened during his predecessor's year of office. Mr. Street-Porter had worked so strenuously. If the desired object was achieved, it would be largely due to his efforts, for he had not spared himself. He thought they must get a better press, and try to influence public opinion. The importers had it too much their own way, and it was difficult to get the exact truth before the public. Speaking of the financial side of the N.P.C. he said that although it was not very satisfactory, he was optimistic, for the industry must recognise the great value of the work the Council had done, and was doing, and could not well refuse it the financial support it so much needed.

National Poultry Institute and Research Stations.

Mr. P. A. Francis then gave a report on the National Poultry Institute and Research Stations. He said that all the arrangements for commencing work in five of the six sections provided for under the National Poultry Institute scheme were now completed. The scheme aimed at the provision of centres at follows:—(1) A new centre for higher instruction and commercial experiments in poultry husbandry to be located at the Harper-Adams' College; (2) Scientific research in problems of poultry breeding, at the School of Agriculture, Cambridge; (3) Scientific research in problems of poultry nutrition at the School of Agriculture, Cambridge; (4) Scientific research in poultry diseases, at the Ministry of Agriculture's Veterinary Laboratory; (5) Practical experiments in the north of England, in the breeding of poultry for egg production; and (6) Practical breeding experiments in the south of England, in table poultry production. Active work was now proceeding in all these sections except the new educational centre at the Harper-Adams' College. In breeding research, a report on which could not be furnished until 2½ more years, the main line of investigation would deal with the inheritance of fecundity. The sub-committee, which was dealing with the southern breeding experiments in the production of table poultry, had decided to begin its work with experiments on the following lines:—To ascertain the amount of weight, and value of weight, gained by various breeds and cross-breeds of poultry, in relation to the weight and value of food consumed; also the feeding costs of finished fowls for the table and the best breeds, or cross-breeds, to use for this purpose; to ascertain the most profitable methods of feeding and marketing birds produced as a by-product on commercial egg farms; and to ascertain the value for table purposes of the breeds most generally used by commercial egg farmers, as compared with the breeds and cross-breeds usually regarded as best for table use; also whether it is likely to be profitable for commercial egg farmers to continue producing chickens for table use from the birds they usually keep at times of the year other than the usual season for hatching laying fowls, and if so, what are the best methods of feeding and marketing the birds. Three-fourths of the capital outlay in connection with all this research work was being provided out of the Development Fund, the remaining one-fourth being contributed by the poultry industry. All the cost of maintenance was being met out of the Development Fund.

CONSIDERATION OF RESOLUTIONS.

Amendments to Constitution—Federations.

Mr. Croft opposed the resolution, which was proposed by Mr. Brownson. If it was passed the Yorkshire Federation would have to retire from the Council. He denied the right of the Council to interfere with the constitution of any affiliated societies. It was an insult to the Yorkshire Federation.

Mr. Moore, in supporting, said the Council had considerably helped them in forming the Yorkshire Federation, and had permitted them to become affiliated, and now they proposed to expel them. In founding the Federation they were forced to have individual members, in addition to societies. These men were vice-presidents, and had done a great deal in forming new societies, which had increased 100 per cent., and they could not dispense with these vice-presidents.

Mr. Street-Porter, speaking in support of the resolution, defended the action of the Council, and said the committee appointed was most representative. It was absurd to suppose that they had the slightest desire to injure the Yorkshire Federation. It was felt that Federations should be combinations of societies, and not governed by individuals. The resolution aimed at the societies having control of the Federation through their representatives; that was a democratic way of looking at it.

Mr. Brownson said he sympathised with the Yorkshire Federation in its peculiar position. They wanted to help them and not to hinder. He suggested an amendment to the resolution, the words " in future" to be inserted after Federations. The amendment was accepted, and the Yorkshire representatives intimated they were quite satisfied.

The remaining proposals affecting the constitution, as proposed by the committee, were agreed to.

Insurance of Poultry-Keepers (Scientific Poultry Breeders' Association).

"That the proposals which have been made for mutual insurance on the part of the Hunts and Poultry-keepers within their areas against losses by foxes are commended to those engaged in the Poultry Industry in that (a) such system would not abrogate the right of poultry-keepers to be protected in every possible way against such losses, (b) that Hunts shall contribute towards the cost of such insurance, and (c) that support shall be given to Insurance Companies who are prepared to accept the risks involved and pay satisfactory claims promptly."

(A representative of a leading Insurance Company has promised to attend and explain the proposals made by it for Mutual Insurance).

Mr. E. J. Meekings, who proposed the resolution, said that it spoke for itself. If it was possible to make an arrangement whereby the present unsatisfactory position could be cleared up, it would be very much to their advantage. There was no basis of settlement at present, and some hunts were not very ready to pay compensation. If it was possible to insure the hunts would contribute towards the cost, he thought that would be a very satisfactory way out.

Mr. Stockfield, who represented the Insurance Company, was introduced by the President, who asked him to give the delegates all possible information on the subject. He said it had been generally thought that the insurance of poultry was of secondary consideration. Some time ago he came into touch with several masters of hounds, and they told him they had paid very large sums for years, and that they saw no way of preventing such a great expenditure. He thought the very best feeling existed between owners of poultry and members of hunts, and it had grown up as an established custom in England that the farmer was entitled to claim, from the members of the hunt clubs, amounts in respect of damage done by foxes. That was quite right and proper, and it was recognised by the hunts, but in all matters of this kind where there was no legal basis on which they could work grievances very often arose on one side or the other. Consequently his company had approached 186 hunts. It offered for a nominal payment to take the whole liability off their shoulders. The scheme had been operating for many months, and many claims had been paid; the full amount claimed always paid, as the decision was left, not to the Company, but to a local committee. The Company fixed a rate of 3s. for £10 worth of poultry. For 15s. a year an ordinary smallholder or farmer, if he kept £50 worth of poultry, could be relieved of the necessity of going to hunts for compensation, and at the same time could continue in the very greatest friendliness with the members of the hunts. The Company issued the insurance policy on the understanding that the farmer must not destroy the foxes—that was where the Company protected the interest of the hunts—and also that he must take reasonable care of his poultry. A poultry-keeper in a district where there was a hunt which would not co-operate in the dual scheme, would have the advantage of a lower premium.

Mr. Stockfield answered numerous questions by the delegates, and great interest was taken in the proposals. The resolution was seconded by Mr. Bostock Smith, and carried unanimously.

In the afternoon the delegates visited Wilton House, and were shown all the wonderful treasures and the beautiful grounds. Proceeding from there to the Manor House, Odstock, they were hospitably entertained by Mrs. Knight. After tea they spent a most interesting time on the poultry farm, which their hostess has built up in such a wonderful way. The President, in proposing a vote of thanks to Mrs. Knight, remarked that it was very interesting to know that the farm was built up from two sittings of eggs, and since the initial purchase no outside capital had been brought in.

The delgates returned to Salisbury for the evening session after a very pleasant afternoon, which was much enjoyed by everyone.

The further proceedings will be reported in next week's issue.

BRIGHTON STOCK TEST REPORT FOR MAY, 1924.

HEAVY BREEDS SECTION.

R. Mummery (9 W.W.), 1053 eggs; W. F. Morris (12 W.W.), 1227 eggs; Countess Buxton (5 W.W.), 604 eggs; Mrs. Crooke (4 W.W.), 480 eggs; W. Crabtree (10 W.W.), 1185 eggs; Brighton (8 W.W.), 762 eggs; Craig Gallon (8 R.I.R.), 600 eggs; McLeod (9 R.I.R.), 1105 eggs; Mrs. Russell (6 R.I.R.), 615 eggs; R. Saunders (7 R.I.R.), 816 eggs; S. Simmins (10 R.I.R.), 707 eggs; Capt. Woodford (14 R.I.R.), 1170 eggs; Capt. Tomlinson (9 R.I.R.), 955 eggs; Miss Clark (10 R.I.R.), 758 eggs.

LIGHT BREEDS SECTION.

Bradbury (14 W.L.), 1774 eggs; Craig Gallon (15 W.L.), 1377 eggs; E. Coles (10 W.L.), 1291 eggs; Chisbury Farm (17 W.L.), 1541 eggs; Stanley Street-Porter (18 W.L.), 1998 eggs; B. Glendenning (17 W.L.), 1530 eggs; Mrs. H. Kent (18 W.L.), 965 eggs; Sweet-Escott (19 W.L.), 1662 eggs; David Brown (187 W.L.), 1648 eggs; Amsden Bros. (17 W.L.), 1744 eggs; D. Gunston (16 W.L.), 1832 eggs; Miss Maddison (18 W.L.), 1254 eggs; Miss Ransford (14 W.L.), 1671 eggs; Court Farm (17 W.L.), 1609 eggs; Court Farm (13 W.L.), 1314 eggs; Brown's Poultry Farm (9 Ancona), 863 eggs; Mrs. A. Stewart (10 B.L.), 1035 eggs.

JOHN H. DOWDEN, Heathfield.

MIRFIELD AND DISTRICT POULTRY-KEEPERS' ASSOCIATION.

NINTH MONTHLY REPORT.

The 6th July closed the ninth monthly report of the Test held at Roberttown Poultry Farm. There have been two deaths, Nos. 21 and 42.

There is a slight increase in egg production over the previous month.

Light Section. Single Bird.—Ledgard and Brown (W.L.), 145 points; J. A. Shackrak (W.L.), 129 points; Sykes Bros (W.L.), 129 points.

Heavy Section. Single Bird.—C. Whiteley (W.W.), 144 points; G. Brook (R.I.R.), 125 points; J. Raistrick (R.I.R.), 122 points.

Pen Section Light (3 Birds).—N. Firth (W.L.), 372 points; Ledgard and Brown (B.L.), 359 points; J. W. Brown (W.L.), 295 points.

Pen Section Heavy, (3 Birds).—W. Horsley (B.R.), 300 points; T. E. Burnett (L.S.), 282 points; P. Furness (R.I.R.), 215 points.

THE NATIONAL UTILITY POULTRY SOCIETY AND THE UTILITY DUCK CLUB NATIONAL EGG-LAYING TEST, 1923-24.

REPORT FOR THE EIGHTH MONTH—15th MAY to 11th JUNE, 1924.

PULLET TEST.

The outstanding feature of the eighth month was the extreme broodiness shown by the heavy breeds, of which as many as 514 birds were treated, including 22 twice. Amongst the light breeds 47 birds (one twice) were broody. The unusual freedom from broodiness during the early part of the season possibly accounts for the excessive number now affected.

With such a large number of birds out of action, the egg yield naturally shows a decline, and the total number of eggs recorded fell to 35,842—an average of 17.69 eggs per bird. This latter figure compares with the last month's average of 19.54 per bird.

The light breeds again laid well, and put up an average of 19.78. This places them for the first time in front of the heavy breeds, their average to date being 122.68, as against 120.81 by the latter. The Championship Section average is 128.09.

Among Leghorns the Cuckoos again did well. Exchequers, which made a good start, were unfortunate in contracting chicken-pox from the birds in an adjoining pen, and had to be removed to the isolation pens. This accounts for the somewhat indifferent show they have made.

SUMMARY OF LEADING PENS.

Section 1. Championship (10 Pullets).—1, Fowler, Miss M., 1456 eggs; 2, Rogers, Warwick, 1431 eggs; 3, Snowden, Frank, 1364 eggs

Section 2. White Leghorns (5Pullets).—1, Welch, F. R., 806 eggs; 2, Knight, Mrs. E M. L., 813 eggs; 3, Gonne, Capt. V. C. M. 763 eggs.

Section 3. Black Leghorns (5 Pullets).—1, Snowden, Frank, 774 eggs; 2, Berry, P. K., 703 eggs; 3, J. and A. Moore, 694 eggs.

Section 4 Non-Sitting Breeds (5 Pullets).—1, Thompson, J. H., 680 eggs; 2, Reed, R. B., 657 eggs; 3, Hall, R. Charles, 655 eggs.

Sub-Section 4a. Exchequer Leghorns.—1, Outhwaite, Sam, 549 eggs; 2, Cayler, Vice-Admiral C., 495 eggs; 3, Bloom, D. G., 437 eggs.

Section 5. White Wyandottes (5 Pullets).—1, Seddon, Harold, 786 eggs; 2, Rodwell, Richard, 775 eggs; 3, Rayner, G. H., 763 eggs.

Section 6. R.I. Reds (5 Pullets).—1, Salt, W. and T., 801 eggs; 2, Capper, A. H., 696 eggs; 3, Kitchin, Miss D. E., 693 eggs.

Section 7. Sussex (5 Pullets).—1, Rossall-Sandford, F., 699 eggs: 2, Bradbury, W., 693 eggs; 3, Welch, F. R., 641 eggs.

Section 8. Sitting Breeds (5 Pullets).—1, Skinner, Miss K. B., 849 eggs 2, Welch, F. R., 692 eggs; 3, Bell, Miss Harrison, 690 eggs.

Sub-Section 8a. Austral Orpingtons.—1, Parsons, H. R., 699 eggs; 2, Chaloner, Hon. Elizabeth, 470 eggs; 3, Adams, Hon. Mrs., 624 eggs.

Sub-Section 8b. Buff Rocks.—1, Welch, F. R., 692 eggs; 2, Bell, Miss Harrison, 690 eggs; 3, Kemp-Gee, A. M., 675 eggs.

Sub-Section 8c. Orpingtons.—1, Morrison, D.S.O., Major J. A., 679 eggs, 2, Gough, P. J., 592 eggs; 3, Simpson, Mrs. K., 587 eggs.

Section 9. Members N.U.P.S. (2 Pullets).—1, Robinson, A. H., 321 eggs. 2, Hufton, S., 295 eggs; 3, Foster, D. P., 291 eggs.

Section 10. Teams (5 Pullets).—1, Tottenham Utility Poultry Society, 754 eggs; 2, North Lancs. and Westmorland U.P. Fed, 672 eggs; 3, North-Essex Branch, 626 eggs.

CORRESPONDENCE.—Continued.

CEREBRO-SPINAL MENINGITIS.

To the Editor of "Eggs."

Dear Sir,—I have recently experienced an epidemic of Cerebro-Spinal Meningitis among a batch of late-hatched ducklings. Two other persons in the neighbourhood also experienced the same trouble among late-hatched birds, almost within a few days of the writer's ducklings contracting the disease. In each instance the ducklings were about four weeks old. They were well grown and well housed. It seemed, however, more than a coincidence that the ducklings which contracted the disease were being kept close to swimming water, and had free access to it during the day. In the writer's case the ducklings were being kept by the side of a very slow running streamlet, and the other two lots were allowed to swim on ponds. Whereas another batch of late-hatched ducklings, belonging to myself, kept away from swimming water, and receiving only drinking water and sufficient to wash in, were entirely free from the trouble. In this case the water was all well-water and kept disinfected.

In the meantime a duckling was sent to Capt. Leeney, and the writer had all the ducklings removed from the water's edge, and all water was at once disinfected with Chloride of Lime. At this period the epidemic was at its height, ducklings were dying by the dozen, and the finest seemed to go first. Capt. Leeney confirmed my fears, that the outbreak was Cerebro-Spinal Meningitis, but the result of removing the ducklings from the ponds and dyke, and only giving them disinfected water to drink, was instantaneous. The trouble stopped as quickly as it had begun. This fact convinced me that the disease is a water-borne disease, and the fact that this season and the two previous seasons, no trouble has been experienced until the end of June, convinced me that there was some relation between the warm weather and the disease, and that apparently the germ flourishes in warm water, because other batches of ducklings reared under similar conditions up to June, had been perfectly free from disease.

The writer then got into touch with a friend, Dr. Fagan, B.A., B.S.C., Pathologist at University College Hospital, who was kind enough to give me the following information, and has offered to investigate the disease in relation to ducks:—

(1) The germ is a strain of Menengo Coccus.

(2) It is believed to enter and attack the nasal cavities and the mucous membranes situated therein, when it spreads to the Spinal Column and causes an access of Spinal fluid, the pressure of which causes death.

(3) The germ is a very delicate one, and does not live long at temperatures under 70 degrees fahrenheit, but thrives best at blood heat, viz., 94 degrees, and is not at all resistant to disinfectants.

(4) Outbreaks of the disease are generally due to the presence of a "carrier," and when in the case of human beings, a number are confined in a space where there is insufficient cubic air space. This, of course, would apply to animals as well. In hot weather conditions become ideal for the incubation of the disease in the case of ducklings confined at night in houses with insufficient top ventilation.

(5) The only treatments known are (a) By drawing off the fluid from the Spinal Column. (b) By injecting a serum into the vertibrae.

(6) To prevent the outbreaks of disease. (a) Do not overcrowd. (b) Allow ample ventilation. (c) Do not allow ducklings access to swimming water that cannot be treated with disinfectants, when the temperature of the water exceeds 60 degrees Fahrenheit. (d) Disinfect all drinking water, and do not allow the water to stand in the sun.

(6) The Incubation period of the bug is so rapid, viz., about 24 hours, that this accounts for the rapidity of the spread of the disease.

(7) Many types of germs attack their victims at a critical age; this may account for the fact that ducklings succumb more readily when commencing to feather at about four weeks old.

I think these few facts give sufficient indication of how to prevent the disease. In the meanwhile Dr. Fagan has been kind enough to say he will attempt to classify the strain of Menengo Coccus that attacks ducklings. Classify their life cycle and prepare serums for experimental inoculations. These experiments will be carried out at the Hospital Labs. It will be necessary to keep him supplied with diseased ducklings. This, however, is not so easy as it sounds, for the temperature of the dead duckling must be kept up to about 90 degrees Fahrenheit, otherwise the germ may perish before he gets them. A vaccum flask is required, which must be filled with water warmed to 94 degrees Fahrenheit, and the duckling is then deposited therein.

As these experiments may be of general value to all "duckers," I intend to ask the Secretary of the U.D.C. to see if he can provide out of the Club Funds a couple of vaccuum jars for the purpose of dispatching dead ducklings to Dr. Fagan.

Yours faithfully,
C. S. ROSCOE.

FUTURE MENDELIAN RESEARCH IN POULTRY.

By R. C. PUNNETT.

It is but three years since the First World's Poultry Congress met in Holland, yet I venture to think that in those three years has come about the greatest revolution that the British Poultry World has yet experienced. These are strong words, and I daresay that many, if not most of you, will ask what justification there is for their use. Are not things as much as they were in 1921—for some a little better, for others, perhaps, a little worse?

We may have made a bit of progress, but you will say the hen is still a hen, and eggs are eggs.

Where, then is this revolution? All of which I grant freely. The great change that has been wrought lies not in the *impedimenta* that accompany her progressive march, neither in vitamins, nor balanced rations, nor in artificial lighting systems, improved incubators, houses and the like. It is in yourselves, ladies and gentlemen, that the revolution has come about. It lies in the changed attitude of the industry towards scientific research. In my own particular province, that of research in breeding, the change has come with a speed rivalling the fall of the Mark, and perhaps you will pardon me a few reminiscences.

In 1907 I attended the Second National Poultry Conference at Reading. It was a noteworthy meeting, in that, as pointed out by the President, Mr. Edward Brown, there was instituted for the first time a section for the problems of breeding. To that section Mr. C. C. Hurst gave a lucid account of Mendelism as applied to poultry. Nevertheless, though some interest was professed, the new discovery was regarded more as a scientific curiosity than as anything meriting serious attention. Twelve years later I attended another conference, this time in London, at which I had been invited to read a paper. In the interval had been discovered the phenomenon of sex-linked inheritance, and it was with this that my paper dealt. Again I felt that it was regarded merely as a curiosity, without any bearing on the methods and problems of the commercial breeder. But only two years later, at the Hague Congress, I was conscious of a marked change taking place. There was a willingness, even an eagerness, to hear what the scientific men had to say, and what struck me very much was the way in which one breeder after another took one aside, poured out his difficulties, and asked for advice. That one could offer so little of value was to be regretted, but this was a small matter in view of the significance of the change that had come about.

Science was beginning to be recognised for what it really was—the making and organisation of knowledge to subserve the practice of everyday life. The breeder was beginning to feel the need of such organised knowledge to guide his practice, and at the same time to realise that its acquisition was a matter of accurate and laborious experimental enquiry. Instinctively he felt that this was beyond him, demanding, as it does, opportunities and training which were seldom his. If this knowledge was to be gathered it must be by trained observers, provided with adequate facilities. Once converted to this view the industry acted promptly. To take advantage of a Government offer it raised within its own rank a substantial sum of money, so bringing into being the National Poultry Institute, for purposes of scientific research.

The existence of that Institute is the outward and visible sign of the spiritual change that has revolutionised the breeders' outlook. We hear little to-day of those semi-contemptuous references to the theorist, so rife but a few years ago. Indeed I am not sure that there is not a tendency to rate too high some, at any rate, of those who profess to speak in the name of science. However, by their fruits ye shall know them, and on this point I would say but one word more. Should you find yourselves deceived by one who claims that his advice is based upon scientific work, do not rush to the conclusion that Science is to blame. Science is never at fault, but her interpreters may be mistaken. Should disappointments occur, I trust you will put that blame where it should be borne, and not lose confidence in the scientific method. For that undoubtedly is right, and no longer stands in need of any defence from me. Rather it is for scientific explorers to justify the confidence which you have begun to place in us as exponents of the method. It is for us to make you feel that definite aims lie behind our experiments, confused and perhaps irrelevant as they may appear to one who views them from the outside; that the achievement of those aims will lead to the increased economy in production which is the keynote in the progress of every industry.

I do not think I can do better than by trying to take you into my confidence, and explaining what it is we hope to do in the near future at the breeding research department of the National Poultry Institute.

As our main line of experimental enquiry we propose to study the fecundity of the hen. Of course, everyone knows to-day that fecundity is inherited, and no one would dream of starting a flock for egg production without carefully considering the antecedents of their birds. But what the heritable factors are, and what is the precise mode of their inheritance, are still controversial questions. From his experimental work Pearl came to the conclusion that fecundity depended upon two heritable factors, of which one was sex-link. The hen of high fecundity must receive that factor extra fecundity from her father alone, though he himself received it from his mother. Translated into practice this means that for high egg production the cockerel is the important bird. Provided that he is the son of a hen with an outstanding records, his daughters will be good layers, even though their mothers may have been but average birds.

A few years later Goodale also came to the conclusion that fecundity depended primarily upon two heritable factors, but he differed from Pearl in supposing that neither of these factors was sex-linked. Hurst, whose results will be found in the Transactions of the First World's Poultry Congress, agrees with Goodale in supposing that there is no sex-linkage involved, but differs from both Goodale and Pearl in regarding fecundity as dependent upon three distinct factors, which influence the rate of egg production in Winter, Spring and Autumn respectively.

The doctors disagree, and in a case where accurate diagnosis is of the first importance. Clearly it is a matter for further experiments, and the first point we shall attempt to decide is whether any factor affecting fecundity is sex-linked in its mode of inheritance. How we propose to set about it, and our reasons for doing so, is what I now want to try and explain to you.

During the past decade or so in America the study of the little pomace or vinegar fly has led to remarkable progress in our knowledge of heredity. This work, all of which I need hardly say, has been undertaken in a purely scientific spirit, and without any thought of commercial application, has a very important bearing on breeding problems in poultry. One of the chief outcomes of these experiments is the demonstration that the factors, upon which the inheritance of character depends, are located in certain minute constituents of the cell known as chromosomes, and are probably arranged in linear fashion along these chromosomes. To each pair of chromosomes in the cell, for in all cells except the germ cells these bodies are paired, there corresponds a group of hereditary factors. All of the hereditary factors hitherto demonstrated in the pomace fly, and there are many more than a hundred, fall into four distinct groups corresponding to the four pairs of chromosomes. Now theory demands, and experience agrees, that all of the factors belonging to a given group should exhibit linkage with one another, but not with the members of another group; that is to say, they tend to stick together during the hereditary process. Of the four groups, one is still further distinguished by the fact that the members composing it all exhibit the peculiar phenomenon of sex-linkage—evidently due to their being located in the particular pair of chromosomes which specially influence the determination of sex. All factors which exhibit sex-linkage exhibit also the ordinary phenomenon of linkage with one another, as indeed is only to be expected on the supposition that they are located in the same pair of chromosomes.

Such is the position arrived at from the study of the pomace fly, and there are now many indications that it holds good also for other forms of animal life.

We may turn back to our poultry problem which is to determine whether any of the factors upon which fecundity depends are transmitted on the sex-link scheme. To do this directly is difficult, owing to the fact that we are dealing with a factor which is transmitted by the male bird, but produces in him no visible effect. Some cocks are potentially better layers than others, but as none of them lay eggs this can only be directly tested by mating them with hens of known genetic constitution, and observing the performances of their daughters. Since many daughters are necessary to establish their father's character, beyond a doubt this direct method is both tedious and expensive. Here is where the pomace fly comes in. It has taught us that all sex-linked factors show linkage with one another. We know already of several factors for visible characters in fowls which exhibit this phenomenon of sex-linkage; such, for instance, as the silver-gold pair and the barred-unbarred plumage pair. If we can show that there is linkage between fecundity and silver plumage, or between fecundity and barred plumage, then we shall have shown also that there is a sex link at fecundity factor. If, however, we fail to find linkage between fecundity and both of these visible sex-linked characters, we shall have demonstrated that fecundity does not depend upon factors which are sex-linked.

Perhaps I may make my point clear if I outline briefly one of the experiments which we are starting. In order to test whether there is a fecundity factor which shows linkage with factors that are definitely sex-linked, we require male birds which have received from one parent the fecundity factors together with certain sex-linked factors that affect conspicuous plumage characters, and from the other parents none of these things. Useful sex-linked plumage characters are found in the silver-gold and the barred-unbarred pairs. Hence our cross must be between a silver-barred bird of high fecundity and a gold unbarred bird of low fecundity. Since the barred character is bestowed when the plumage is dark we propose to use as our gold unbarred breed a black which does not carry the factor for silver.

Some preliminary experiments have shown us that the black Sumatra is of this nature; and as it is a breed of low fecundity we have chosen it for our purpose. Preliminary experiments have also shown us that the Barred Rock contains the factor for Silver, as well as that for Barring. Consequently the cross between a Barred Rock of high fecundity and Black Sumatra should give us the cockerels we require for testing, for such birds will receive the factors for Barring, Silver and high fecundity from their Rock parent, and none of these things from the Sumatra. The cockerels must be tested by mating them back to Sumatras, and observing the nature and behaviour of their daughters. In so far as plumage is concerned, these pullets may be expected to be of four kinds genetically, viz.: Barred Silvers, Barred Golds, Unbarred Silvers, and Unbarred Golds (the unbarred birds will, of course, be preponderantly black, but the great majority of them will probably show sufficient gold or silver in the neck hackles to allow of determination; fully black birds will have to be tested by mating with a gold cock).

Owing to the fact that silver and barred are both sex-linked, the two classed barred silvers and unbarred golds will be larger than the two classes unbarred silvers and barred golds, as indeed Haldane has already shown. And if there is a sex-linked fecundity factor we should expect a higher proportion of good layers among the silver and the barred pullets than among the unbarred and the gold. Should, however, it turn out that the good layers are equally distributed among the classes of pullets then we may infer that high fecundity is not dependent upon a factor showing its sex-linked inheritance, at any rate in the breeds chosen for the experiment. In the event of fecundity proving to be sex-linked, our next step will be to determine the strength of the linkage with silver and with barred. The closer the linkage with either of these characters the more accurately would the plumage character serve as a guide to the laying properties of the bird. Should it, for instance, turn out to be closely linked barred plumage, then by picking out the barred, whether silver or gold, we should know that we were separating, with few exceptions, the more fecund birds from the inferior ones. And as we have already shown these plumage characters are expressed in the down of the chicks, we should be in a position to effect the separation at hatching.

But all this, for the moment, is speculation, and I have only ventured upon it because I wish to give you some conception of the ideas which serve to guide our work. Still we hope to be able to have something definite to lay before you by the time the next World's Congress meets.

Meanwhile, I would again point out that in making use of the phenomenon of linkage we are not confined to characters that are sex-linked. It happens that the few characters for which linkage has hitherto been demonstrated in the fowl are also sex-linked. But as the genetical analysis of the fowl proceeds we shall doubtless meet with other groups of characters which show linkage with one another. It is in finding these groups of linked characters that our hope of progress seems to lie. The characters that are of the highest importance from the economic standpoint are precisely the characters of which the exact mode of inheritance is most difficult to determine. They are for the most part characters which are not manifest in the hen until the period of reproduction. Broodiness, fecundity, hatchability, stamina—all these important, indubitably inherited characters can only be determined in a hen by recording her performances over several years. Difficult as is the case of the hen, even more so is that of the cock. His constitution can only be determined at present through the performances of his daughters, and as experimental stations are always on a limited scale, we can never hope to analyse more than a few birds in a breeding season. This makes the direct method slow. We realised this some years ago in Cambridge when we were attempting an analysis of broodiness and of egg colour. We found it very troublesome, after our cross, to pick out the hen that laid brown eggs and did not go broody. It meant mating each cock with hens of known constitution in respect to broodiness and egg colour, rearing a number of daughters, and making records from each one of them. The process of testing a number of cocks in this way is tedious, though straightforward. It was, of course, necessary in the case I mention, where we were concerned with the question of whether such characters as egg colour and broodiness could be expressed in terms of a few Mendelian factors; but I am inclined to doubt whether the raiser of new strains would ever have the patience to proceed along such laborious lines. Nor would there be any necessity for his doing so, if we could show that there existed linkage between the factors which govern these invisible characters, and those upon which are dependent the manifestation of visible characters, whether for structural features, plumage, colour or pattern, or anything else.

(*To be Continued.*)

TESTIMONIALS.

Station Cottages, Northiam, Sussex.
1-11-23.

Dear Mr. Newman,—I would like to say how much "Eggs" is appreciated here, and the sound principles governing it. We members feel that we have "a straight deal," and a genuinely helping hand. It is a point of no small importnce, for instance, to feel that advertisements of quack and useless goods and stock are not accepted.

Then, the feeding and housing advice is unequalled and reliable. So to you and your staff our hearty thanks.

With my best thanks,

Yours sincerely,
(Signed) E. A. PAINE.

Rosehoe, Hythe, Kent.
27th August, 1923.

Dear Sir,—I greatly appreciate the paper, and find it an immense help. My trouble has been halved, and the results most encouraging by following "Modern Poultry Feeding," and putting all my chicks from the first day on Experiment IV. Out of 50 chicks hatched the mortality has been **nil**, and they have always looked in the best of health and vigour.

Yours truly,
(Signed) MABEL H. MOON.

Cherry Orchard Cottage, Bromley, Kent.

Dear Sir,—I must, in conclusion, express my deep gratitude to you for the sound advice you give in "Eggs." It has been of the greatest use to me, and my chicks and adult stock are all raised and fed on your formulas to my considerable profit and the birds' health and stamina.

Yours very truly,
(Signed) HERBERT BINNEY.

Dear Sir,—I have only been a member of the S.P.B.A. since January, but I have gained more knowledge from "Eggs" and the Year Book in that time than I have ever got from other journals in years.

Yours faithfully,
(Signed) H. BRAMLEY.

Cumrew, Heads Hook, Carlisle.
21st June, 1924.

Dear Sir,—In conclusion, may I take this opportunity of expressing my appreciation of "Eggs" with hearty congratulations to the Editor.

Yours faithfully,
(Signed) J. T. POYNTER.

NATIONAL TEST, 1924-25.

The particulars of the 1924-25 Test are now ready, and can be obtained on application to the Hon. Sec., "National Test," Bentley, Suffolk.

The rules governing the test will be on the same lines as those of last year, except that in the championship, and other sections open to various breeds, a competitor may enter any number of pens, provided they are all of a different breed.

With the view to giving special recognition to the importance of winter egg production, silver medals will be awarded in each section to the pen making the highest score in the first sixteen weeks of the test.

A greatly increased number of cups and special prizes are to be competed for, and the Test is supported by fifteen Breed Clubs, who are offering prizes open only to pens of birds that have been passed in to the Test as conforming to the breed standard. The effect of these breed prizes is already to be seen in the all-round improvement in the type of the birds competing in the current test.

It is hoped to provide pens for 500 additional birds, which will bring the total accommodation to over 2,500 birds.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Clark, Mrs. M. C., Mailingsland, Peebles, Scotland.
Barrett, Miss H. F., "High House," Ludham, Gt. Yarmouth.
Gaisford, Miss M., Corran, Biddenden, Kent.
Miller, F. B. Nasmyth, Adeyfield House, Hemel Hempstead, Herts.
Dalton, R. F. (B.A.), Lambrook, West Camel, Bath.
Murray, W. M., 48b, Orbeston Street, Motherwell, Scotland.
Steward, Mrs. A. E., Walnut Cottage, Bentley, Hants.
Elderton, E. F., "Knockboyne Farm," R.M.D., No. 1, Royal Oak, Victoria, B.C.
Walker, Jas. G., The New House Poultry Farm, N Wormingford, Colchester.
Danial, James, 146 Holding, Weeford, Nr. Lichfield.
Catford, Geoffrey, Invicta Poultry Farm, Goring-by-Sea, Sussex.
Gates, John H., East Haddon, Grange, Northants.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 18th JULY, 1924.

GRAIN AND FEEDING STUFFS.—Offerings of home-grown grain are now very small and quotations for oats are unchanged, but odd lots of wheat sell at rather more money. A stronger demand is generally reported for imported wheat, barley and oats, and all descriptions are quoted at more money than last week. No. 1 Manitoba wheat averages 12s. 11d. per cwt., an advance of 5d. per cwt. on the week; Karachi barley averages fully 10s. 7d. per cwt., an advance of 5d. on the week, and No. 2 Canada Western oats average 9s. 6d. per cwt., showing a further slight advance. Argentine maize is in good demand and higher prices are reported, the average quotation of 8s. 10d. per cwt. showing a full recovery of last week's drop in price, and is the same as three weeks ago. A fair trade is experienced for milling offals, and further advances in prices are reported in some cases. Bran averages £6 12s. per ton, broad bran £7 6s., and coarse middlings £9 4s. against £6 10s., £7 3s. and £9 2s., respectively, last week. Linseed cakes are in very firm demand, and recent increases in prices are well maintained. Other cakes show little change. Dried brewers' grains are slightly increased in price at London.

MILLERS' OFFALS.—Bran (British): Bristol, £7 5s.; Hull, £6 7s.; Liverpool, £6 5s.; London, £6 12s. Broad Bran: Hull, £7 7s.; London, £7 5s. Middlings:—Fine (Imported): London, £9 15s.; Coarse (British): Bristol, £9 15s.; Hull, £9 5s.; Liverpool, £8 10s.; London, £9 5s. Pollards (Imported): Bristol, £8 7s.; Liverpool, £7. Rice Bran: Bristol, £7 12s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11 12s.; Hull, £11 10s.; London, £11 10s. Maize Meal: Bristol, £10 7s.; Hull, £9 10s.; Liverpool, £9 15s.; London, £10 7s. Maize Germ Meal: Bristol, £10 5s.; Hull, £9 15s.; London, £9 10s. Maize Gluten Feed: Bristol, £10 5s.; London, £9.

EGGS AND DEAD POULTRY.

A steady demand exists for eggs, Irish at Liverpool and English at London both showing an increase of 1s. per 120, while most descriptions of imported sell at round about recent figures. Poultry meets a good trade at last week's prices, although secondary sorts have a cheaper tendency.

Week-end Prices—Eggs (per 120): British: 18s. 6d., 17s.; Irish: 16s. 6d., 15s.; Danish: 18s., 16s.; Dutch: 19s. 6d., 17s.; Russian: 11s. 6d., 10s.; Belgian: 17s., 16s.; Italian: 17s., 16s.; Lithuanian: 14s. 6d., 11s. 6d.; Chinese: 12s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 6d., 2s.; Irish, 1s. 9d., 1s. 5d.; Others, 2s. 2d., 1s. 6d. Ducks, 1s. 6d,, 11d. Geese, 1s. 1d., 9d.

EGGS.

Per Doz.—Ashford: First, 1s. 11½d.; Second, 1s. 10d. Birmingham: First, 1s. 10¼d.; Second, 1s. 9d. Bridgwater: First, 1s. 8d. Carlisle: First, 1s. 9d. Chelmsford: First, 1s. 11½d.; Second, 1s. 9d. Denbigh: First, 1s. 10d.; Second, 1s. 8d. Derby: First, 1s. 7d. Dorchester: First, 1s. 8d. Exeter: First, 1s. 9d. Hereford: First, 1s. 7d. Ipswich: First, 2s. 0d.; Second, 1s. 9d. King's Lynn: First, 1s. 9d.; Second, 1s. 8d. Lincoln: First, 1s. 9d. Newport (Mon.): 1s. 7d.; Second, 1s. 5d. Norwich: First, 1s. 9d.; Second, 1s. 6d. Oswestry: First, 1s. 7d. Penzance: First, 1s. 6d.; Second, 1s. 5d. Salisbury: First, 1s. 9½d.; Second, 1s. 8½d. Shrewsbury: First, 1s. 8d.; Second, 1s. 6d. Skipton: First, 1s. 1d. Truro: First, 1s. 6d.; Second, 1s. 5d. York: First, 1s. 9d.; Second, 1s. 8d. Llandilo: First, 1s. 6d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 9d. Derby: First, *5s. 9d.; Second, *3s. 3d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d. Ipswich: First, 1s. 9d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 10d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 5d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 1s. 3d. Derby: First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 4d. Llandilo: First, 1s. 10d.; Second, 1s. 6d.

* Per Head.

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6 „ „ „ 4
9 „ „ „ 6
13 „ „ „ 8

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Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office
FIRST POST FRIDAYS
for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent **and six penny stamps extra to cover cost of acknowledgment of same.**

PULLETS.

FOR SALE.

To make room for young stock, can offer 100 White Leghorn, 1922 and 1923 hens, full sisters to my third prize winners, Harper-Adams' Competition; 50s. per dozen. White Wyandottes, Rodwell x Wilson Beatties' strain; 54s. per dozen. R.I.R., Boucher's x Measures' extra special pens; 54s. per dozen. Black Leghorns, full sisters to my birds, now second National, and third, Harper-Adams; 52s. 6d. per dozen. A rare chance to start a farm with the best of quality. All birds guaranteed in perfect health. These birds are cheap at three times the price as my original eggs cost £3 3s. to £5 5s. per dozen. — Hodkinson, Holywell, Huntingdonshire.

Bostock Smith, Paynter, Light Sussex Pullets; hatched mid-March; milk fed; 6s. each; carriage paid on six.—Smith, Wixenford, Wokingham, Berks.

Light Sussex, Phillips; White Leghorn, Snowden; 1924 Pullets and Cockerels; 1922 Hens and Cocks. Price list free.—Barrowmore, 4, Great Barrow, Chester.

Will they stand the winter strain?

Unless your pullets pile up reserve of strength *now*, then the drain upon them when they come into lay next October may cause breakdown—prolapsis, for instance. Give them Ful-O-Pep Growing Mash and you can be *sure* that they are getting the extra nourishment required.

Keep them on Ful-O-Pep Growing Mash. Remember how vital it is that they should have maximum stamina; think of the profit which may be swallowed up by such scourges as Coccidiosis: remember too, that you can only get a regular supply of big, fine-flavoured eggs next winter if your pullets are fed properly *now*. That means feeding them the finely ground, perfectly balanced, easily digested Ful-O-Pep Growing Mash.

Read the chapter on Rearing in the Ful-O-Pep Monthly Guide sent FREE. The Guide has illustration and full details of the All-age Self-Feeder.

FUL-O-PEP TRADE MARK
GROWING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE.

Tip several days' supply straight from bag to hopper. Give one mixed grain feed daily. Sold only in sealed bags. When buying Ful-O-Pep always look for our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag.

Guaranteed by Quaker Oats Ltd., 11, Finsbury Sq., E.C.2

PULLETS.

FOR SALE.

Barnevelder Pullets (1923); well marked typical birds; 10s. 6d. each. F. Paynter, The Lawn, Lampton Road, Hounslow.

Twenty W. Leghorn Pullets, April hatched; Snowden strain; from trap-nested hens; 8s. each. Ten Ditto, 1923 hatched, 6s 6d.—Jones, Bonnington, Ashford, Kent.

PULLETS, COCKERELS.

RHODE ISLAND REDS.

February-March hatched, all individually marked, from Dr. Baldwin's Registered Pen 1· Leslie Pattison's Pens 3 and 5; own Pen 1 (Registered) and 2. Dams' records 205-270. Price 9s. upwards.—Colonel Clark, Bransgore, Hants.

COMMANDER TIPPET,

Goring Heath Pedigree Poultry Farm, Oxon, offers 150 1923 hatched, trap-nested

WHITE LEGHORN PULLETS,

all L2, of grand stamina, which must b cleared before August. They will make

VERY VALUABLE BREEDERS

for next season. 9s. 6d. each, £5 per doz. Offers invited for quantities.

CAPTAIN STRONG, R.N.

1924. EXHIBITION PULLETS. 1924.

White Wyandottes, Rhode Island Red, Light Sussex, White Leghorns of the leading strains, perfect in type and colour; very hardy, raised on free range, 660 above sea-level; 8s. to 15s.; Cockerels, £1 1s. Vacancy for Pupil. — **Hillerton** Poultry Farm, Bow, Devon.

W. CRABTREE

can supply immediately 1922 W. Leghorns and W. Wyandottes at 5s. each; 1923 **Pullets at 6s., 10s., and 15s. each; and six** months old pullets for August to October delivery at 15s., 20s., and 30s. each; 2s. 6d. per bird deposit with order, all carriage paid and crates free. **I have seven pens** (56 birds) in the first four positions in the **principal laying trials. — Twiston, Near** Clitheroe, Lancashire.

1924. PULLETS. 1924.

Selected, large, big-framed Pedigree Pullets, from egg record parents, January and February, 1924, hatched. Light Sussex (Russel-Cook), Rhode Islands (Golden-Russel), White Wyandottes (Cam-Barron), all guaranteed healthy; 8s. 6d. each, £6 dozen; carriage paid.—

G. W. BELL, N.U.P.S.,
"Lord of the Manor," St. **Lawrence,**
Ramsgate.

A MORE ECONOMIC BREED,

THE BLACK BRESSE.

We are Specialists of this valuable breed, the best for the table and laying capacity. For three years it won the first prize at the laying competition of the Vaulx de Cernay (France). We had first prize at Epernay, Marne, for beauty and utility. April pullets, 12s. 6d.; lots of 50, 10s. 6d. each. Carriage paid to French port (Dieppe). All stock reared on free range, bred and fed on Tom Newman's formula.

**ELEVAGE MOULIN DE FISMETTES,
JEAN MOLLE, FISMES (MARNE),
FRANCE.**

Member of S.P.B.A., and Bresse Club of France.

E G

Wednesday, July 30th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. X. No. 5. Copyright.

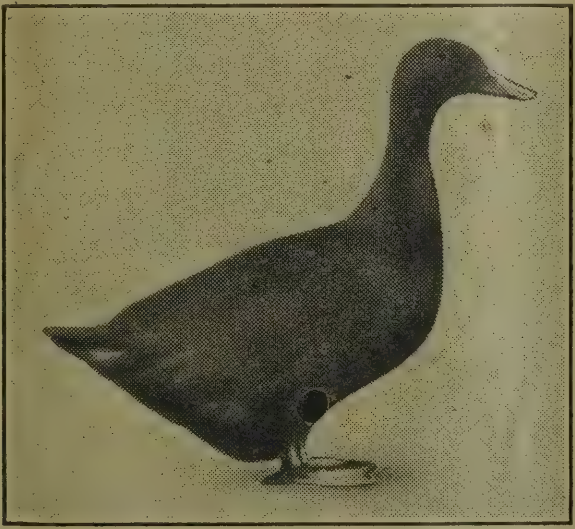
Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months	Post Free	12/8
Six Months	,, ,,	6/4
Three Months	,, ,,	3/3

KHAKI-CAMPBELL DUCK.

Official Record at National Laying Test: 323 eggs in a year.

Dam of four of the Ducks in the pen which has been leading all Sections of the Duck Test at Bentley for the last four months.



Bred and owned by
Captain R. A. LONG, *Stondon Manor, Shefford, Beds.*

The WHITE HOUSE POULTRY FARM.

ST. NEOTS, —— HUNTS.

House and Appliance Department.

THE PREFER HOUSE, as used on our Farm, is a type very distinct from any other House on the Market. Fitted with a most Perfect Ventilating System, that requires no alteration, is no trouble, but ensures Warmth with plenty of Light and Fresh Air.

The Seal of Quality

and Distinction.

Send for one of our Catalogues and see for yourself.

POULTRY FOODS
Quality Guaranteed

	per cwt. s.	d.
Complete Laying Meal	16	6
Mixed Poultry Corn (Specially Cleaned)	13	0
Clover Meal	13	6
Meat Meal	17	6
Sussex Ground Oats (95 per cent.)	15	0
Pure Barley Meal	13	0
Pea Meal	14	6
Kibbled Round Corn (Sifted)	12	6
Flint Grit (Three Sizes)	7	3
Oyster Shell	7	6
Alfalfa Meal	16	6
Maize Meal	13	0
No. 1 Chick Grain (First Feed)	18	0
No. 2 Chick Grain (Second Feed)	16	0
Chick Rearing Meal	16	6
Meat and Bone Meal	16	0
Bone Meal	15	0

Etc., Etc., Etc.

Free on Rail, Hanley. Sacks Free.

CASH WITH ORDER.

Special Quotations for Ton Lots and over, Free on Rails.

Enquiries solicited.

Established 1878. TEL.: Hanley 874.

DICKSONS,
(M.S.P.B.A.),
Corn Merchants and Poultry Food Specialists,
FAR GREEN, HANLEY, STAFFS.

You are Wasting Food if you do not house your Laying Stock well.

THEY may be from the finest pedigree laying strains and your feeding may be the last word in carefully balanced rations, but if your housing is not of the best you are most certainly losing eggs. Big employers of men spend thousands in housing their workpeople well, for they know it means increased efficiency. Your birds are your workpeople, and to get the utmost production it is essential that their housing should be of modern design, incorporating all the latest improvements in Sanitation, Ventilation, and Lighting. In short, it should be—

EXTENSIBLE UNIT HOUSING

Note the care given to these points in the house illustrated, and compare with your present housing. You may see working models at Bush House, Aldwych, or the actual houses at Bethersden. Fully illustrated literature sent post free upon request.

One of the 60 ft. x 15 ft. Rearing Houses supplied to Major W. Hayland Wilson, Longparish, Hants. His pen—No. 59—now leading in current Harper-Adams Laying Test at end of eighth month, were reared in this identical house.

For information, etc., write to :

W. H. COLT, M.N.U.P.S., M.S.P.B.A.,
BETHERSDEN, Near ASHFORD, KENT,
or call and inspect specimen houses at Bush House, Aldwych, W.C.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, July 30th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

"THE COMPLETE POULTRY BOOK."

By W. POWELL OWEN.

Mr. Powell Owen is a prolific writer. In the preface of his new book, "The Complete Poultry Book," he speaks of his efforts to produce a "complete" "standard" work, and claims that it "deals in detail with all poultry problems of the moment." Whether it will be a standard work or not, will, I suppose, depend largely on public opinion, but he is surely an optimist who thinks it possible to deal in detail with the various systems and problems of poultry-keeping in 318 pages, particularly when there are chapters devoted to: Shows and Showing, The Work of Poultry Societies, Breeding for Feather, The Health of the Stock, Successful Duck-Keeping, Bantams, Geese, Turkeys and Guinea Fowl, and the Business End. Duck-keepers might suggest that to deal with their problems in detail would require a book and not a chapter. Mr. Powell Owen found it necessary to devote a book of the same size to the problem of Selecting the Layers alone.

In the preface the author makes a very astonishing claim which cannot for a moment be admitted. He says:—

> "Recent years have brought about changes in types and breeds. While beauty of feather once held complete domination, the tendency now is to lay chief stress on egg production. This movement, of which **I was the pioneer,** has established the Utility type of hen in each breed."

Again, later on, he says:—

> "Utility poultry blossomed forth as the result of the war, and if I am emphatic in my views, it is with a sincere desire to secure better utility poultry. **Having done more than any other to place utility poultry on the top rung of the ladder, I am still greatly interested in its welfare."**

> "When I started out as the **pioneer of utility poultry societies** and utility shows, I was thinking solely of the good of the utility hen. My mind went back to the days before the war, when sittings of eggs could be bought for a few shillings each; laying pullets from 5s. to 7s. 6d., and, if specially selected, for 10s. 6d. each. With a view to keeping the utility bird going I inaugurated the shows and societies, and have been busy in that direction ever since. Instead of receiving help from the utility breeders, they opposed me, under the impression that high prices would always rule. Had not such steps been taken to save the position of the utility bird, we should have gone back to the exhibition bird and the five shilling pullet.' '

This is sheer nonsense. The author must have a very sketchy idea of the laws of supply and demand. The utility bird owes its position to-day to the laying trials, which first demonstrated the possibilities of the laying hen as a commercial proposition, then to the pedigree breeder who developed her, finally to the commercial egg farmer who set up the demand. Utility poultry blossomed long before the war, prices were advancing before that. Mr. Powell Owen's mind does not carry him back far enough. I have bought pure-bred Black Leghorn chicks, day-olds, at 3s. 6d. per dozen, and laying pullets, also pure-bred, at 2s. 6d. each, but that was some years before the war, and prices had advanced considerably before that broke out.

Mr. Powell Owen lacks the sense of proportion. There are scores of men and women working quietly and unostentatiously, who have done far more than he has to place the utility poultry industry in the position which it holds to-day, and most of the work of which he claims to be the pioneer was done before poultry-keepers had ever heard of him, by men whose names are household words, and who have an international reputation. The Utility Poultry Club was started when Mr. Owen was in swaddling clothes. It is just possible that he was the pioneer of utility shows; that I cannot say, but even if he was they are of doubtful value, and most certainly he was not the pioneer of Utility Poultry Shows.

It is a pity that such statements as this mar a book which contains much that is useful and valuable, and is exceedingly well illustrated. There are some statements which are rather astounding. For example, on page 219, when dealing with Black Bresse, after commenting on type, the author says: "*Opinions vary and exhibitors must pick their types to suit their judge.*" Surely the futility of the utility show, of which Mr. Powell Owen boasts he is the pioneer, could not be better exemplified than this. Here we have one of the foremost judges giving advice, which is, to say the least of it, a serious reflection on the ability of judges at utility shows. How grateful exhibitors of Bresse must be, what settled ideas of type they will have. Presumably this advice applies to all breeds. Shall we hear again of the educational value of utility shows?

Another statement which may be open to doubt is contained in the chapter on the egg, when it is said: "A shelled egg, or even a soft one, can find its way back up the oviduct, and become deposited in the abdomen."

Writing of "Feeding for Eggs," the author says: "When pullets are coming into lay, they have increased appetites, and the abdomen becomes full of intestines." It would surely have been better to have explained this in more detail; stated in such a crude way it may give the novice the impression that the intestines have slipped into the abdomen.

Again, in "Feeding the Layers," we are told "Rice should not be given in excess, as it dries up the blood." What an extraordinary statement. Does it "dry up" the blood by absorption, or how? This needs some explanation.

Again, "Yeast is a useful tonic, but like malt culms should not be given regularly or in excess of 10 per cent. of the mash." The advice not to use more than 10 per cent. is sound, but yeast is something more than a tonic, and having used it regularly for years, and knowing hundreds of others who have done so, it is hard to understand why this advice is given.

Again, "Maize Meal is fattening, and is very useful for table stock." "Beans are indigestible." "Pea Meal is often used in small quantities in winter." These statements are too vague. Maize is useful in fattening, but it lays on internal fat, and should be used with discrimination, and nothing is said as to its value to the layer. Beans are not easily digested, nevertheless, they are a very valuable food when wisely used. Pea meal can be used the whole year round, and is another valuable food if the price is economic. There is a very useful chapter on Show and Showing, with an excellent glossary on technical terms.

Mr. Owen says the Light Breeds are not smaller eaters than the heavies. Here, I think, he is wrong; although it is true that a pen of Leghorns in full production will often eat as much as a pen of heavies, which are not in full lay.

In his chapter on "Selecting a Breed," in which there is much useful information, the author gives the preference to Australorps, Anconas, Barnevelders, Exchequer Leghorns, and Columbian Wyandottes, before the Buff Rock, Bresse, Croad Langshan and Brown Leghorn. I would place the Buff Rock before anyone of these breeds. Again, I should certainly hesitate a very long time before I advised the Barnevelder or Australorp for commercial egg production.

It is a pity that in a book containing much that is excellent, so many statements should have been made which give a wrong impression. They are too general in character, and in a book which professes to deal with problems in detail, they should have been more particular. They need qualification and explanation. I must again protest against the publishers' habit of sending, with books for review, a resume of what the reviewer is expected to say.

EGG LAYING TEST.

I have received the report of the Egg Laying Competition, which is being run under the auspices of the Department of Agriculture and Technical Instructions of Southern Ireland.

The results are complete from the period of 16th October to 30th June of this year.

Section No. 1. (Non-Sitters). The winning pen is the property of Mount St. Joseph Abbey, which have laid 1,055 eggs, value £8 1s. 9d., the total weight being 136lbs. 12ozs., 11drms.

The second pen is the property of Mr. A. J. McGillicuddy, which have laid 1,045 eggs, value £8 1s. 5½d., weighing 113lbs. 2ozs. 14drms.

Pen 3 is the property of Mr. T. J. Maguire, which have laid eight eggs more than Pen 2, value £8 0s. 3d., and the weight being 139lbs. 14ozs. 3drms.

Fourth on the list is Mrs. le Strange, but the drop is a big one, the number of eggs being 911, value £7 11s. 11d., and the total weight 121lbs. 2ozs. 6drms.

Mrs. Coubrough is fifth with 964 eggs ,value £7 4s. 1d., weighing 128lbs. 0ozs. 8drms.

Lady Dunleath is sixth with 874 eggs, value £6 13s. 2d., and weighing 111lbs. 3ozs. 6drms.

All these are White Leghorns, and no other breeds is represented until we come to Miss Cavanagh's Black Minorcas, which have laid 788 eggs, value £5 14s. 2½d., weighing 107lbs. 1oz. 1drm., but evidently the Minorca only counts as a summer layer.

It is noticeable, however, that the weight of the eggs is almost equal to that of a pen of White Leghorns, which have laid 101 more eggs.

A pen of Anconas, which occupies the 19th position, have only done moderately well, 682 eggs, value £5 0s. 2½d., and weighing 96lbs. 3ozs. 15drms.

Section 2. (White Wyandottes). Mount St. Joseph Abbey again holds the leading pen, the total number of eggs laid being 1,084, value £8 15s. 3d., weighing 140lbs. 2ozs. 8drms.

Close by is Mrs. Strong, with 1,067 eggs, weighing 140lbs. 6ozs. 9drms., in value only 5d. less than the leading pen.

Mrs. Chearnaley is a good third with 1,122 eggs, value £8 17s. 3d., weighing 144lbs. 12ozs. 11drms.

Mrs. Harvey is fourth with 1,134 eggs, value £8 12s. 2d., weighing 142lbs. 1oz. 2drms.

Lady Dunleath fifth with 1,056 eggs, value £8 7s. 3d., weighing 141lbs. 13ozs. 1drm.

Mrs. Le Strange sixth with 1,029 eggs, value £7 17s. 9d. weighing 126lbs. 15ozs. 8drms.

It is noticeable that in some of the pens the broody periods have been very long, and the mortality has been fairly high.

Section 3. (Any Other Heavy Breed).—S. Grehan 15drms., value £7 12s. 7½d. Two birds have died in this pen.

Miss Cavanagh and Mr. Marshall Barnes tie for the second and third position with R.I. Reds and Australian Black Orpingtons, respectively.

Mr. Marshall Barnes is fourth again with R.I. Reds, 941 eggs, value £7 8s. 6½d., weighing 118lbs. 5ozs, 5drms.

Miss Cavanagh is fifth with Buff Orpingtons, 869 eggs, value £7 3s. 8d., weighing 110lbs. 0ozs. 3drms. Two pullets have died in this pen.

Mrs. Mitchell is sixth with 896 eggs, value £6 16s. 5d., weighing 120lbs. 8ozs. 14drms., with a pen of R.I.Reds.

Duck Section. Mrs. Tallent leads with Fawn and White Runners, 943 eggs, value £7 12s. 11½d., weighing 149lbs. 15ozs. 11drms.

Lady E. Poer-O'Shea is second with 720 eggs.

Lady Dunleath third with 706, but the ducks appear to have only done moderately well. With one exception they are Fawn and White Runners.

I am hoping that when the full report is issued we shall have further details to give.

KEIGHLEY AND DISTRICT BRANCH OF THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

Laying Test, held at Minorca Farm, Denholme. Report for ninth month (28 days), which concluded on July 9th. W. Leghorn No. 15 died from ovarian trouble. Broodiness has again been prevalent amongst the Heavy Breeds. The birds are all in perfect health. A 2oz. egg is termed first grade for this month, and under that weight second grade.

Light Breeds.—1, H. Kershaw (W.L.), 182; 2, S. Lawton (W.L.), 181; 2, W. Bancroft (Ex.L.), 181; 3, Capt. W. Owen (W.L.), 176; 4, S. Preston (W.L.), 175; 5, Mrs. H. Wilson (W.L.), 168; 6, H. Buckley (B.L.), 167; 7, S. Lawton (W.L.), 163; 8, Mrs. J. R. Thompson (W.L.), 159; 8, A. Butterfield (W.L.), 159; 9, H. Dixon (W.L.), 158; 9, Ed. Smith (Ex.L.), 158; 10, H. Reynard (W.L.), 155. Other scores are: No. 18 (154); No. 36 (153); No. 33 (152); No. 19 (152); No. 60 (152); No. 17 (151); No. 48 (150); No. 31 (150); No. 9 (148); No. 15 (146); No. 11 (133); No. 44 (129); No. 53 (122); No. 39 (118); No. 37 (112); No. 59 (102); No. 14 (97).

Heavy Breeds.—1, H. Nelson (W.W.), 182; 2, H. Kershaw (W.W.), 177; 2, H. Rawlinson (W.W.), 177; 3, H. Downsbrough (W.W.), 168; 4, J. Ellison (R.I.R.), 159; 5, Mrs. G. Barker (W.W.), 158; 6, S. Lawton (W.W.), 153; 7, S. Preston (Buff R.), 152; 8, J. H. Brayshaw (W.W.), 149; 9, S. Lawton (L.S.), 142; 10, H. Kershaw (R.I.R.), 141. Other scores are: No. 32 (139); No. 20 (139); No. 8 (134); No. 35 (134); No. 12 (133); No. 10 (130); No. 63 (126); No. 6 (123); No. 62 (123); No. 27 (122); No. 29 (118); No. 64 (103); No. 30 (95); No. 28 (81); No. 22 (76); No. 13 (25); No. 57 (5).

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

FUTURE MENDELIAN RESEARCH IN POULTRY.

By R. C. PUNNETT.

(Continued.)

Therefore, I think that our task to-day is to analyse every character that we can, no matter how trivial it may appear, and, further, to analyse it in connection with every other character. The hen to-day is like a jig-saw puzzle with all the pieces, the genetical factors tangled up in seemingly inextricable confusion. Our business is first to separate the pieces—to identify all the various genetical factors which determine all the various characters of the bird; and, secondly, to fit al the various pieces into a picture—to decide which factors show independent inheritance, and which are linked with one another. For this purpose cross between pure breeds is likely to prove of value if accurately and intelligently recorded through several generations. But as the main business of the industry is with what I have called the invisible characters, e g., fecundity, hatchability, egg colour, broodiness, etc., our crosses should be so arranged that there may be a reasonable chance of testing for linkage between one or more of these invisible characters and characters involving structure or colour. Let me give an example to illustrate my meaning. It is a matter of common knowledge that most of the breeds that lay white eggs have white ear lobes, whereas red ear lobes are generally found in breeds that lay tinted eggs. This suggests that there may be linkage between the ever visible ear lobe character and the more or less invisiable character of tinted eggs, and for one with enthusiasm and leisure it would be a hopeful case to investigate. To such an enthusiast, and I hope he may come forward, I would, however, point out that, simple as the case appears at first sight, it is in reality of some complexity. Egg colour is certainly dependent on several factors, while such evidence as I have obtained suggest that the difference between red and white ear lobe is also dependent upon more than a single factor. If, however, our enthusiast managed to determine exactly upon what factors colour of ear lobe depended, and at the same time recorded egg colour, he would have decided whether there existed linkage between any ear lobe factor and any factor for the colour of the egg. Were linkage is to be discovered it would be of considerable service to the breeder in enabling him, after a cross, to pick out from among his cockerels the potential layer of tinted eggs without having recourse to an elaborate series of tests. And if linkage were definitely shown not to exist, the result would still be helpful in serving to clear the ground for future work.

This, then, must be our programme—a complete analysis of *every* character in the fowl. That it is possible, and that nothing less will serve is the lesson that the pomace fly has to teach us. The more we learn about the hereditary factors, the easier becomes future progress. As in the jig-saw puzzle, it is the earlier stages that present the greatest difficulty. As completion approaches, the last pieces come to fit themselves. So it has come about in the pomace fly. Any fresh character that turns up to-day can, by a few simple experiments be accurately related to all the rest. Numerous as are the varieties of the pomace fly the investigator can predict the results of a cross between any two of them—the number of forms will appear as the result of the cross, and the proportions in which these various forms will show themselves. If we knew as much about the hen as about that little fly, the making of new and more desirable breeds of poultry would be a simple business indeed. Yet, although we poultry people are so far behind, we know what can be done, and we know how to set about it. That it is a vast task I fully admit; I am sure that it will not be achieved in my lifetime nor, in all probability in the lifetime of anyone else here to-day. But, provided that our civilisation holds, it will one day be accomplished, and it will then be seen to have been worth while.

I say this, having regard to aspects other than the purely commercial one, important though it may be. Man does not live by eggs alone. He who has imagination and intelligence (and what successful breeder is without them?) cannot be really happy if he lacks opportunity for the exercise of these qualities. One of the best features of the poultry industry lies in the relative absence of that mechanical repetition of action, which is the unavoidable curse of a highly industrialised community; for the hen, fortunately, is a capricious creature.

In her vanity lies much of her charm. I am convinced that this can be greatly enhanced if the breeder will take the trouble to follow the progress of heredity. Many of the little things that puzzle him in the hen will become clear, and they in turn will help to throw light upon many a puzzling feature in the life of our own kind. For of the new science of heredity that has recently arisen the commercial applications are as nothing in comparison with its spiritual import.

The geneticist himself is under no illusion as to what it all means. To those who have eyes to see, it is a fresh aspect of the living thing that is gradually coming into being, a new orientation towards life itself. For the way of the hen is the way of all flesh, and he who honestly follows the one will find therein the clue to much which seems difficult and perplexing in the other.

The above paper was read at the World's Poultry Congress by Professor Punnett.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Modern Poultry Feeding.

By TOM NEWMAN.

WHEAT AND CHICK MORTALITY.

I have received the following letter from a correspondent :—

> " Dear Mr. Newman,—With reference to ' C.B.'s ' letter i your issue of the 25th June, and Mr. W. Bourne's letter in you issue of July 9th. As I have already told you, I also ha my full share of this disease, and I also fed finely kibble wheat. As I am therefore extremely interested in th correspondence, can I persuade you to let us have your opinio on this question ? "

I do not think my opinion will be of much value as there is not much evidence to help me. " C.B." merely spoke of a high mortality which two qualified pathologists have invariably diagnosed as pneumonia and congestion of the lungs. Mr. Bourne had reared 1,200 chicks with a loss of 3 per cent. when, without any apparent reason, on putting another 300 under the hover he began to lose grea numbers on the fourth or fifth day until he had lost 70 per cent. In the next two hatches the results were the same, chicks under hens had th same symptoms, but the losses were not so heavy Mr. Bourne had read of a similar case in which the writer had traced his losses to wheat, and he had a fresh supply of cracked wheat when he began to lose his chicks ; he tried a fresh lot o wheat, and lost no more chicks.

Here are the facts. What are we to deduce from them? The evidence is strongly in favour o a bad sample of wheat being the cause of the mortality, and I don't wish to suggest that it was not so ; but it may have been a mere coincidence that the outbreak occurred when the new sample was first fed, and ceased when another supply was obtained. The losses were not so heavy under hens, and this makes one think a bit, because had the wheat been the cause we should have expected them to be quite as heavy. It is a different matte with disease of a contagious nature. We can then understand why, with two or three hundred chicks under a brooder, there may be a considerable number affected, while a hen with a dozen or so chicks may be immune. If the food was the cause, then all would be consuming the same poison, and we should expect all to be more or less affected.

There has been some talk of the toxicity o wheat (I am not now referring to bad wheat). Certain experiments would appear to justify this, bu this suggestion should be viewed rather in the light of a deficiency of the mineral content than that of the presence of any active poison, and i should be mentioned that the whole ration was confined to wheat and the wheat plant. In the early spring I had a great many samples o " smutty " wheat sent me. I think I mentioned this in these columns, and suggested that the sale of " smutty " wheat for poultry should be prohibited. There is the possibility that some of thi s kibbled and placed on the market. This would cause a high mortality, as would damaged wheat which may be mouldy ; this would be very fatal even to adult stock, and I have known heavy losses to be traced to this cause on more than one occasion. Without a doubt damaged wheat may cause very heavy losses. We had ample evidence of this during the war, when there was so much really bad stuff on the market. "Smut," of course, can always be detected, but care should be taken to see that kibbled wheat is free from mould. One can generally detect the musty smell. Some of the vendors of dry chick feeds are none too particular as to quality ; of course, firms of repute would scorn to use doubtful or inferior samples.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By Drs. J. L. Rosedale and R. H. A. Plimmer.

(Continued.)

THE COMPARATIVE B-VITAMIN VALUE OF FOODSTUFFS.

The comparative value of several foodstuffs in preventing Polyneuritis in pigeons has been determined by Chick and Hume and by Cooper. Yeast extracted (marmite) was found to contain more B-vitamin than any other foodstuff except rice germ. It has also been found that the B-vitamin content of marmite is very constant. Marmite may therefore be chosen as the most convenient standard. If the figure of 1 g. found by the above workers and also by ourselves for pigeons be put at 100, their figures give the following comparative numbers :—

Marmite, 100; wheat germ, 67; pressed yeast, 40; egg yolk, 33; ox liver, 33; ox brain, 17; sheep brain, 8; ox heart muscle, 20; beef muscle, 5; lentils, 33; peas, 20; barley (unhusked), 27; barley (husked), 20.

Group VI. showed that 1.25 g. marmite=1.68 g. cerema. Group VII. that 2 to 2.25 g. cerema= 4 g. dried yeast. Hence, marmite 100, cerema 75, dried yeast 50.

Groups VIII. and IX. showed that 9 g. marmite was required for 90 g. rice+5 g. fish meal.

Group VI. showed that 3 g. marmite was needed for 90 g. rice and 90 g. dried skim milk.

If 90 g. rice need 9 g. marmite, and the 90 g. rice and 90 g. dried milk need 1.5 g. marmite, then the difference of 7.5 must have been supplied by the 90 g. dried skim milk over and above any that was wanted to balance itself. This quantity is unknown, but 90 g. dried skim milk provides as much B-vitamin as 7.5 g. of marmite, or 8.3 per 100 dried skim milk.

A later experiment with Group XI. has shown that 90 g. oatmeal+5 g. fish meal need 1.5 g. marmite, 90 g. oatmeal will thus contain 9 1.5 or 7.5 g—that is, 100 g. oatmeal contains as much B-vitamin as 7.9 g. marmite.

Different foods have thus very different amounts of B-Vitamin in them as measured in terms of marmite. It does not follow from these data that Sussex ground oats have the same amount of B-vitamin as oatmeal. Each foodstuff has to be separately studied.

COMPARATIVE B-VITAMIN REQUIREMENTS OF CHICKENS AND OTHER BIRDS.

It might be thought that the food requirements of the different kinds of poultry were the same. Benedict and Sugiura (1923) from their experiments with pigeons have been led to generalise that very little A-vitamin is needed in avian nutrition. The observations of Emmett and Peacock (1923) upon chickens do not agree with this statement. The experience of poultry-keepers is also contrary to such an idea. Turkeys and pheasants at any rate are harder to rear than chickens. Our own experiments with pigeons and chickens indicate that the B-vitamin requirements are not the same. It is possible that the difficulties in raising turkeys is in part connected with the B-vitamin requirements. A comparative test to determine the B-vitamin requirements of various kinds of poultry was carried out, using the same diet, consisting of :—

90 g. oatmeal.
5 g. fish meal.

This diet, without any addition of marmite or cod liver oil, was chosen because pigeons had been kept for a period of over a year upon it.

Pigeons.—Two pairs of homer pigeons had been kept on the above diet for 14 months. The hens of each pair laid eggs regularly every month during the breeding seasons. The young birds of one pair, blue, always died about the tenth day. One young bird of the other pair, red, was successfully reared by the parents in 1922 and another early in 1923, but it had crooked feet and was chloroformed. Observation that the young birds were not neglected by their parents indicated that the diet was not correct.

To the diet of the red pair 0.5 g. marmite was added per 30 g. oatmeal.

To the diet of the blue pair 1 cc. of cod liver oil per 90 g oatmeal was added.

The young of the blue pair still died in about ten days after hatching.

The young birds of the red pair were successfully reared, but a pair of unfertile eggs intervened between the pairs which were reared.

It thus appears that, though adult birds can live for long periods on the diet, it is necessary to supplement the food with B-vitamin (0.5 g. per 30 g. oatmeal) for the rearing of young. Further experiments on these lines are planned for the next breeding season.

Chicken.—From our experience with Groups I. and II., it was not expected that chicks could be reared on oatmeal and fish meal without extra B-vitamin.

Group X., consisting of ten day-old chicks, was used for establishing this supposition. It was necessary to let the birds die, in order to prove that the food was not suitable.

Deaths occurred from the second day; all showed ruffled feathers by the eighth day, and the last bird died on the 52nd day. In many birds, on post-mortem examinations, the gut was found full of undigested food, and it seemed that death was due to the absorption of substances formed by putrefaction; in two cases a perforation of the gut wall was found.

Group XI., consisting of 24 Black Leghorns, was then used to see if, with the addition of 0.5 g. marmite per 30 g. oatmeal, the birds could be reared. With the exception of one chick, which died on the second day from an unabsorbed yolk sac, all were raised to maturity. Their food consumption and average weekly weights are given in the table so as to compare with Group I., II., and III.

The addition of 0.5 g. marmite per 30 g. oatmeal makes it possible to rear chicks on the above diet.

Marketing of Poultry.

By A. V. CLARKSON.

PETIT POUSSIN.

This particular class of bird is one which can be made very remunerative to the producer who will take the trouble to thoroughly understand it from the market point of view, taking into consideration at the same time his own breeding arrangements for the following season.

The Market facts are as follows:—

The genuine demand for Petit Poussin commences in February, for the tiny chicken weighing 8 ozs. when killed and clean-plucked, and as the weeks follow the demand slowly changes for poussin of a larger size, until it reaches May or June, when nothing is wanted under 1¾ lbs.

It will be seen from this that the producer will have to start hatching very early, and the question as to whether it is profitable for the producer to hatch for this specific object is one for his own discretion.

The actual time of marketing poussin must also be at the discretion of the particular producer in conjunction with the state of the market, because one who is rearing for stock cockerels can only market his surplus when they have reached the age at which he can decide which he intends to keep, and which he intends to market.

The real petit poussin is a bird which should be milk-fed, in order that it may be plump and soft. When it is ready for marketing it should be killed and ABSOLUTELY CLEAN-PLUCKED. They should be very carefully cooled, and graded in sizes.

After this they should be packed in boxes, each containing a dozen birds. The actual packing material to use is green reeds, because with these one can make a very attractive consignment, providing the birds are properly prepared.

A box suitable for holding a dozen birds should be readily obtainable at most grocers' shops, and it is really unnecessary to have special boxes for this purpose.

If the producer is unable to obtain green reeds, or even fern leaves, he should use grease-proof paper.

The writer would point out the fact that black-feathered birds do not look anything like so attractive as the white-feathered varieties.

It is really surprising how well some people manage to make a consignment look, and how badly others do, with exactly the same material, and with this particular trade appearance is almost three parts of the selling.

As a word of warning, the writer would mention that Poussin with full crops are invariably condemned as being unsaleable.

The producer must keep in close touch with the market for this particular trade, because a particular size poussin which is wanted this week may not be wanted next week, and a bird of this size cannot be kept for any length of time, and even if it is put into cold store it is surprising how rapidly it deteriorates, both in appearance and condition.

The above article concludes the writer's advice regarding the marketing of table poultry, and any member who has any doubt upon any particular topic will be willingly supplied with any further information he may desire upon making application through "Eggs." The writer trusts the articles he has written have been of some slight benefit to his fellow members of the S.P.B.A., who have had little or no experience of London markets, and would repeat that he really thinks it would be to the benefit of those interested to save these articles and use them in conjunction with the Monthly Market Advice Table, which will be published in this paper.

With regard to the question of crates used by poultry farmers, the writer would like to give the following tip:—

Never use your exhibition crates for sending poultry to market.

When being sent to London with the birds in they are most carefully handled by the railway employees. When being returned, they are treated as "Returned Empties," and an expensive exhibition hamper does not rest very comfortably beneath a lot of heavy empty wooden crates, and it is not very encouraging to the sender to receive his beautiful hamper as flat as a pancake.

There is just one other point the writer would like to touch upon before concluding, and that is that when September arrives the poultry market needs large supplies of wild rabbits.

Many poultry farmers are in a position to obtain wild rabbits either from their own farms, or possibly from neighbouring farms, and seeing that there is always a steady demand for this class of produce, the writer thinks that poultry farmers should seriously consider whether they cannot augment their incomes from September to March by sending rabbits to London.

Of course, it is impossible to forecast at this time the price that rabbits will realise during the coming season, but the fact that dealers all over the country make a living out of "Dealing" in rabbits, and sending them to London should be sufficient to prove that there is "something in it."

For the prospective rabbit sender's benefit the writer wishes to tender the following advice :—

Rabbits for the London markets should be trapped and not shot (once again due to the fact that appearance is half the battle). Rabbits should be paunched cleanly, and cooled prior to sending. They should never be packed tightly, because, other than grouse, there is no article which gets alive with maggots quicker than rabbits. Many thousands are condemned in London every season.

Really the only way to pack them is to obtain hanging crates from the salesman, which are open at the top. These are specially made for this specific object after many years experience of all sorts, sizes and methods of packing.

SECOND MIDDLESEX COUNTY LAYING TEST.

Held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR NINTH MONTH.

Light Breeds (Single birds).—1, J. and A. Moore (B.L.), 170 eggs; 2, Roebuck and Illingworth (B.L.), 163 eggs; 3, J. A. Howarth (W.L.), 158 eggs; 4, Maj. Kingscote (Ancona), 152 eggs; 5, F. J. Betts (W.L.), 146 eggs; 6, Mrs. E. F. Paulet (B.L.), 130 eggs.

Heavy Breeds (Single Birds).—1, H. J. Veeger (L.S.), 172 eggs; 2, Mrs. J. H. Drew (Buff Rock), 167 eggs; 3, Mr. and Mrs. E. Lade (R.I.R.), 166 eggs; 4, Mrs. M. Rogers (R.I.R.), 164 eggs; 5, J. A. Howarth (W.W.), 162 eggs; 6, Lady D. Fraser (R.I.R.), 171 eggs.

Light Breeds (Pairs).—1, Davey and Son (B.L.), 255 eggs; 2, L. C. Turnill (Minorcas), 240 eggs; 3, W. H. Hawkes (W.L.), 256 eggs; 4, F. C. Tomlinson (W.L.), 258 eggs; 5. E. and W. A. Franey (W.L.), 251 eggs; 6, W. H. Grist (W.L.), 258 eggs.

Heavy Breeds (Pairs).—1, A. D. Prince (R.I.R.), 328 eggs; 2. Maj. G. T. Williams (R.I.R.), 312 eggs; 3, E. Bland (W.W.), 310 eggs; 4, W. Claughton Douglas (W.W.), 310 eggs; 5, P. E. White (Buff Rocks), 305 eggs; 6, J. Mitchell (W.W.), 287 eggs.

H. Winch leads in cross section with 149 eggs.

Signed (Mrs.) LILIAN SMITH, Manageress.

GOAT-KEEPING AND POULTRY.

By MRS. EPPS.

FOREWORD.

These articles on goat-keeping that I am privileged to contribute to the pages of "Eggs" are the outcome of an enquiry that I made of Mr. Tom Newman as to the reason for the present position of the goat in England. About twenty years ago, sharing with my sex a strong desire never to be more than twenty-nine years of age (I use the preposition), I was junior partner in a poultry farm, and well do I remember the position of commercial poultry work in those days. Any one who took poultry farming seriously was regarded by all as a species of harmless lunatic, intent upon dissipating his or some one else's capital in as rapid a manner as possible. Compare those days with these when poultry-keeping has become the one branch of farming where faith and hope are justified!

To-day goat-keeping occupies exactly the same position as did poultry-keeping twenty years ago, and this is the point upon which I consulted your Editor—how can we so handle the goat industry that twenty years hence we shall be able to look with pride upon the achievement? The gist of Mr. Newman's reply was this—the need for propaganda, or, in other words, education. People educated in matters affecting rural life are aware, sometimes vaguely, sometimes emphatically, that the average quality goat is an animal that can be regarded as profitable, but only those with an exact knowledge of the virtues of goat's milk and of the prevalence of tubercular disease among young children and adults can appreciate the *real* value of the goat; for, as I am so often emphasising, the *real* value of the goat to the nation cannot be expressed in terms of £ s. d.

I propose in this series of articles to bring out the specific reasons why more goats should be kept in this country, how they can be made better and more profitable animals, and what is their special appeal to poultry farmers.

Readers of "Eggs" form, I think, a somewhat separate branch of poultry-keepers in that they keep an eye on the future as well as on the present, a tendency which probably accounts in some measure for the wonderful strides made by the S.P.B.A., and for this reason I consider that the privilege of contributing a few articles to "Eggs" is a very real one to anyone with the case of the goat at heart, for the position of nanny is all in the future, and not in the immediate present.

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OUR FRONT COVER.

Some wonderful records have been put up by ducks, and not the least of these is the official record of 323 eggs in one year, made by Capt. Long's Khaki-Campbell, which is illustrated on our front cover.

For the third year running Capt. Long's pen at the National Test is at the top.

The duck shown on the cover is one of a pen which was second two years ago.

Last year Capt. Long's two pens gained two cups and a silver medal, and averaged 254 eggs in 48 weeks.

He tells us he has had a particularly good hatching and rearing season, and has a lot of large-framed ducklings, most of which are individually bred from high-record ducks and drakes from individual ducks.

This year Capt. Long has concentrated on careful pedigree hatching from individual birds of good type, many of which have official laying test records.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "Eggs," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

BEES.

QUEEN REARING.

By E. W. D. MADOC.

Although it is generally necessary to purchase a breeding queen in the first place, the bee-keeper who owns more than half-a-dozen stocks will find it pays him well to rear his own queens. To begin with, buying a number of good queens costs a lot of money, and queens that have come by mail are much harder to introduce, but more important than these is the fact that queens that have travelled a long distance rarely turn out such good queens as home-reared ones.

By turning out good queens I mean that they head the colonies producing the most honey.

Although I am fairly sure that travelling generally harms queens, I am inclined to believe that part of the superiority of stocks headed by home-bred queens lies in the fact that these queens, which are generally pure Italian, usually mate with English or hybrid drones, and thus produce offspring with that extra vigour common to most stock produced by the mating of two distinctly different types.

To rear good queens in large quantities by commercial methods requires much skill and practice, but there are ways of rearing first-class queens on a small scale with which anyone of average intelligence can rear the best queens without any previous experience of queen rearing.

There are two ways of rearing queens with little trouble, frequently used by amateurs, but both have serious faults. The first is to remove the queen from the best stock, when the bees will immediately start cells to rear another queen to replace their lost one. The objection to this method is that the bees are in such a hurry to replace their loss that they will make use of larvae that are too old to produce the best queens. The second method is to save queen-cells from any stock that has swarmed, or is making preparations to swarm. By this means queens are obtained which are reared under the very best conditions, but this method pays no attention to selection of stock other than its propensity to swarm, which is, of course, a very objectionable feature.

It is, however, possible to combine these two methods is such a way as to produce the best possible results. Your best stock will probably be disinclined to swarm under the ordinary management, but it can generally be persuaded to do so by the very simple process of failing to give it sufficient room for its needs.

This stock must be watched, and as soon as capped queen cells are found, they should be removed, or a swarm will issue. If increase is desired two or three frames may be removed with the adhering bees, and placed in a new hive, being careful to see that one of the frames contains a good queen cell. The entrance should be closed for two or three days, or most of the bees may return to the old hive. It is best to find the old queen to start with, and put her on a frame by herself, so that she does not get put into one of the nuclei by mistake.

If increase is not wanted the queen in the hive to be requeened should be removed, and a frame containing a queen cell from the best stock inserted. The bees should be brushed off the frame; if they are shaken off the queen cell is very likely to be seriously damaged.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

SKIN REMEDIES.—II.

For the destruction of skin parasites on poultry, a variety of medicaments have been used, and the success attained is commonly due to the thoroughness of the operator rather than to the selected agents. In most books an emulsion of paraffin is recommended. In American works the word kerosene is employed, and this has confused English readers. It always means the ordinary lighting oil, when used in the present connection. Directions are given for making a concentrated preparation for further dilution when to be used. The directions read as though it was a very simple matter. It isn't. It compares in the pharmacy with boiled custard in the kitchen, and the majority of cooks bedevil it. Emulsification is really the drawing out of an oil globule to something less than a mile long, and keeping it thus suspended as part of a fluid of different density and with always a disposition to return to its original shape.

If paraffin is not properly suspended, then it acts as an irritant, and many fowls and other animal have been blistered, and some killed by it, so that it is better to get the pharmacist to make the concentrated gallon and mix the additional water when required, and with agitation. Eight ounces of soft soap is dissolved in half a gallon of boiling water; then a pint of paraffin is poured into it a very little at a time, with continual brisk stirring in one direction only, until the whole is suspended or emulsified. Then by slow degrees, and with continual agitation, the remaining half gallon is added. When to be used, the bottle is agitated, and an amount of water added to make the dilution nine times less strong. It is an admirable parasiticide, except for the one objection already made, being cheap, and keeping indefinitely in the concentrated form.

A still cheaper and absolutely safe remedy is that made by boiling together two pounds of sulphur, and one pound of lime, in two gallons of water. It has to be boiled for an hour and half to complete the decomposition, which may be recognised by the orange colour it then assumes. It has the one serious objection that it rapidly deteriorates from day to day, as it is an unstable compound of sulphides and sulphites and hyposulphites, and should preferably be used on the day it is made, or not later than the third day, if disappointment is to be avoided. Birds of any age may safely be immersed in it. White ones will be stained at the time, but the same instability that attaches to it as a remedy favours its decomposition on the bird, and the colour is soon lost. Fowls are not hypersensitive to coal tar derivatives, and carbolic acid of the strength of one in two hundred of water may be used as a dip.

Many people prefer to employ a powder, as their eyes are offended by a bedraggled wet fowl, than which nothing looks more miserable unless it is a wet cat.

A most effectual powder for lice and other skin parasites, excepting perhaps ticks, is made by mixing three parts of petrol and one part of common carbolic acid, and then stirring it into as much plaster of Paris as it will take up and be slightly damp. Evaporation soon leaves it as a dry powder, and this can be shaken into the open feathers of birds held up by the heels, using a flour dredger. Where large numbers have to be dealt with, one person acts as a filler of several dredgers, while two or more catchers are employed. If the operation is performed after sunset the birds can be placed on the perch without much shaking out of the powder, and the best results are thus obtained. Pyrethrum flowers in fine powder and sulphur and lime in equal proportions answers well for small lots, but the first-named is rather expensive, and the wholesale kind of preparations previously mentioned are recommended.

Readers who have done me the honour to read my previous article on skin parasites will not be content with any application to the birds themselves, but will seek to destroy those parasites which it was explained do not confine themselves to their victims, but lay up in the day-time in houses and coops and nests, etc. Among the remedies recommended for this purpose, and to be used with a powerful spray or pump such as the orchardist treasures (and puts away clean and oiled), are the paraffin emulsion already described; but a syringe may be substituted for small lots or an ordinary whitewash brush in the case of coops and other relatively small articles of equipment. A five per cent. solution of cresol in warm water is effectual, as is a four per cent. solution of copper sulphate of commercial quality, such as is employed for seed wheat (the chemically pure article is costly and not a whit better for the purpose). Three parts of paraffin and one of common or crude carbolic acid is a favourite in America, and is suited to the backyarder who has no very great area to cover. Preferably it should be used through a pump, and the inside of the roof must not be forgotten, or a breeding remnant will be left. Five per cent. of commercial formalin in water is also effectual, but whatever is used there must be special attention given to cobwebbed corners and hiding places in old buildings and home-made shanties, which are so much more difficult to deal with than the section houses, the planks of which have been individually dipped and made safe for two or three seasons.

It should always be borne in mind when dressing the skins of birds or beasts with destroyers of insects, that the eggs or nits, as those of lice are known, are not so susceptible to poisons, being guarded by an outer shell or case, and, although many of them are injured and sterilised, there will be a few escape the deluge and hatch out later; repopulating the victim. This makes it necessary to repeat whatever remedy is selected, in from four to eight days, according to the weather; many mites hatch in two or three days, but they are delayed by cold. It is desirable to catch the new generation before they become sexually mature and propagate, each after his kind.

Favus or ringworm is a vegetable parasite, and easily detected as it appears on the head ornaments first as a rule, and can be promptly arrested by the application of one dram of balsam of Peru and six drams of methylated spirit of wine, painted on to the parts at intervals of two or three days. Another remedy which has been found effectual for ringworm is one part by weight of calomel to seven parts of lard or vaseline.

FIRST CROSSES.

To the Editor of "Eggs."

Dear Sir,—It is always interesting to read anything from our old friend, Mr. Toovey. As he is an unrepentant believer in the first cross, will he kindly tell us which he finds the best cross for winter layers and cockerels for table at 12 weeks old.

I find the Light Sussex cockerel crossed with White Wyandotte hens is the best all-round cross, but I am trying Black Leghorn cockerels with White Wyandotte hens next spring.

Yours faithfully,
J. WILSON.

FEEDING FOWLS.

To the Editor of "Eggs."

Dear Sir,—Mr. F. Ancliffe in the current issue says he feeds his laying fowls at 8s. 6d. per head per year.

There are many members of the S.P.B.A. who would be glad to know how this is done.

I find with toppings at £10 and S.G.O. at £17, and meat meal £20 per ton, it costs me 12s. 6d. per head per year, and I should be glad to know how to reduce it.

The difference between these figures would make all the difference to the Commercial Egg Farmer between loss and profit.

Yours truly,
C. T. LAWRENCE.

EDITORIAL.

NATIONAL POULTRY PARLIAMENT AT SALISBURY.

(*Continued.*)

THE CONSIDERATION OF RESOLUTIONS.

THE TRADING ELEMENT.--Mr. Brownson moved a resolution that Co-operative Societies or Societies of Traders and Distributors, who are members, as provided by Articles 3 and 15, covering a county or district shall each be entitled to appoint one delegate to the National Poultry Council. This was carried with the deletion of the words "covering a county or district."

PATRONS.—It was agreed that Patrons of the National Poultry Council shall be entitled to elect one delegate upon it for fifty patrons with a maximum representation of five. Patrons could also appoint one delegate for each twenty-five patrons, with power to vote at the Parliament.

It was further agreed that Past Presidents of the Council shall be Hon. Vice-Presidents.

CHEAPER RAILWAY FACILITIES.—The Poultry Club moved a resolution, through Mr. C. N. Goods, that the Railway Companies should be asked to issue return tickets at a fare and a quarter to poultry-keepers attending Poultry Shows. He thought the concession granted to other societies should be given to poultry-keepers. After discussion the resolution was carried, Mr. Edward Brown pointing out that in the case of anglers they travelled more or less between two special points. If they could guarantee 200 delegates attending the Parliament they would have obtained the concession.

ADVERTISING CHARGES. — The Lancashire Utility Poultry Society moved a resolution that in view of the selling prices of poultry products, the National Poultry Council should take action to secure a reduction of the advertisement charges of poultry papers. Mr. Hamnett, speaking to support, said that poultry-farmers all over the country were suffering from lower prices for stock, eggs and sittings of eggs, and they could not afford to spend huge sums in advertising. Much bigger support would be accorded to poultry papers if they had reduced rates. Mr. Wrennalls, seconding, said they were selling pullets at 30 per cent. above pre-war prices, and yet had to pay 50 per cent. more for advertisements. They would advertise a great deal more if rates were reduced. The President said that they were very much in the position of buyer and seller, and the resolution would apply equally to millers and corn merchants as to the prices. Mr. Harding thought advertisements were still a good investment, Overhead charges of the Press had greatly increased. / The President then invited representatives of the Press present to state the case to the delegates. The invitation was accepted by Mr. S. H. Lewer, Editor of "Feathered World." He said they were faced by some of the most powerful Trade Unions in the country. The rates of composition, always a heavy charge, had been increased this year by another 7½ per cent., and that advertisement rates has been maintained in sheer self-defence. The progress made by the poultry industry had also brought off extra charges and responsibilities. Great assistance had been given in obtaining the money for the National Poultry Institute. Reports had to be made of such meetings as the National Poultry Council, all Shows, and of the World's Poultry Congress, the cost of paper was double that of pre-war, and the cost of production three times, and the staff charges were three times more. Mr. House, Editor of "Poultry World," endorsed all that had been said by Mr. Lewer. He said they wanted to increase the prosperity of the industry, and it was to their advantage to do this. If they could help the industry by reducing advertising rates they would gladly do so, but it was impossible under present conditions. The President asked, in view of the explanation received from the Press representatives, whether Mr. Hamnett and Mr. Wrennalls were prepared to withdraw the resolution, as it was obviously no good to press it. Mr. Hamnett said that they were quite ready to do so, but that they would still retain the idea of other methods of publicity. They were not advertising freely in Lancashire, but they were very busy; only they wanted to go further, and give them an opportunity of getting still more business.

ALTERNATIVE REPRESENTATION. — The question of alternative representation of the Council was brought forward again by the British Minorca Club. Mr. Brown, in the absence of Mr. Lincoln Tootill, made the statement on his behalf. He said that when meetings had been held in the North they should be able to appoint one of their members living in the North, and another to represent them at the meetings in the South. It was a case of expenses. Mr. Brown, in moving the resolution, said it must be definitely understood that he was not associating himself with it. The chief objection was that it broke the continuity. Mr. Skinner formally seconded, but said he was opposed to the principle, and should vote against it. Mr. Street-Porter said the resolution was unbusinesslike. The President put it to the meeting, but it received no support.

EXPORTS TO NORTHERN IRELAND.—The Poultry Club proposed a resolution that steps should be taken to secure modification of the present regulations governing the export of birds to Northern Ireland. Major Potter asked that it should be deferred for consideration by the Council. This was agreed.

COMPENSATION FOR RAILWAY LOSSES.—On the question of compensation from Railway companies, Major Potter, on behalf of the Poultry Club, moved that steps be taken to approach the Railway Companies to obtain reasonable compensation for loss, injury, or damage to fowls and eggs, the present maximum of 5s. being ridiculously inadequate. This was seconded by Mr. Skinner. Mr. Street-Porter said that the reply of the Companies was that if extra compensation was wanted goods must be insured. Breeders could not expect to have stock carried at ordinary rates, and get special compensation. Mr. Brownson said that the Poultry Club point was that as the Companies had raised their rates, they should also raise the maximum compensation payable. Mr. Edward Brown said the comment of the Railway companies was that they charged more for stock birds, because more care was paid to their conveyance than to ordinary birds. Mr. Hamnett said it paid to send at the ordinary rates because very few birds were lost. Of course, no compensation was payable. The resolution was agreed to.

The Conveyance of Birds.—Mr. Skinner, on behalf of the Poultry Club, proposed that the Railway Committee should be asked to take steps to expedite the conveyance of birds to and from shows and to ensure the most careful handling of such traffic. Mr. Goode, in seconding, gave a concrete case at the Hants Show, where the birds were left all night. Mr. Brown said such cases should be at once reported to the National Poultry Council. They must have absolute facts if the were to deal with the complaints. The resolution was carried.

Mr. J. Wrennals moved on the question of "carriage forward rates" on railway:—That the Railway Companies should be approached with an attempt to secure a return of the pre-war practise. He said it would be a very great concession to people who were sending goods. Mr. Foulkes seconded the resolution, saying that the concession would be very valuable.

On the Thursday afternoon an excursion had been arranged to the poultry farm of Mr. and Mrs. Hunter, at Twyford, near Winchester. The drive through the beautiful scenery of the New Forest had been much looked forward to, but unfortunately the weather broke completely, and although a large number of the delegates braved the elements, and were very hospitably entertained by Mr. and Mrs. Hunter, so badly did the weather behave that only a few of them made the tour of the farm. It was a grievous disappointment. The President, on behalf of the delegates, expressed their grateful thanks to Mr. and Mrs. Hunter for their kind hospitality.

National Poultry Council. — A meeting of the National Poultry Council was held on the Thursday morning, after the conclusion of the business of the Parliament. There was a large attendance of members. Mr. Brownson appealed for help from members in securing more patrons.

Income Tax Assessment.—The Secretary reported that some 100 cases had come to their notice for Income Tax Assessment, and it looked as if there was persecution of poultry-keepers. Mr. Hanson had won his case, as had also Mr. Tom Barron, who had been repaid the excess payments of previous years. The Executive Committee had authorised solicitors to be briefed to defend another case. All the cases which had gone before the Special Commissioners had been won, but those before the Local Commissioners had been less fortunate. They could not get the Inland Revenue to take a case to the High Court, and so for the present all cases had to be fought locally.

Inspection of Poultry.—It was reported that the Ministry had made enquiries as to the Inspection of Poultry Auctions and Markets, and the Parliament was doubtful whether it would be advisable to secure powers for inspection, but before coming to any final decision the Ministry asked for further observation from the Council. The Secretary said there were 29 local authorities already carrying out inspection—37 were in favour, two others were unfavourable, 46 had no poultry markets, 26 very little, or none, 42 made no observations, 15 were unclassified and 78 had not replied. The Secretary suggested that the matter was important, and should be pressed. Major Potter suggested that the Ministry of Health might help them on the score of the public health in securing the condemnation of diseased birds. It was decided that a reply should be sent that the Council pressed the matter, and suggested that the Ministry of Health was also concerned.

ELECTION OF COMMITTEES.

Executive Committee.—W. Hamnett (26), Bostock-Smith (24), Street-Porter (23), Col. Sandbach (22), A. T. Walker (22), P. H. Foulkes (22), J. G. Kitson (22), Mrs. Rawson (21), Leslie Williams (20), A. H. Brain (16), and J. Meekings (12).

The following committees were appointed:—

Finance.—Messrs. Brownson, Bostock-Smith, Foulkes, Hamnett, Kitson, Slade, and Street-Porter.

Marking of Eggs.—Messrs. A. T. Walker, A. H. Brain, C. Longbottom, Clem Watson, Tom Barron, and S. Street-Porter.

Parliament.—Messrs. Street-Porter, Brian, Slade, Walker, Tom Barron, Major Potter, and Col. Sandbach.

Railways.—Messrs. Brain, Hamnett, Harold Marshall, Col. Sandbach, Mr. L. Williams, Renals, and Mrs. Rawson.

Egg Consumption and Publicity.—Messrs. Bostock-Smith, Brian, Powell Owen, Dowden, Evans, Kitson, H. Pickford, Street-Porter, Williams, and Mrs. Rawson.

Laying Trials.—Dr. Crowther, Messrs. Tom Barron, Hamnett, Howes, Leigh, Longbottom, F. Snowden, L. Williams, J. Renals, M. H. Brady, T. R. Robinson.

Advisory Committee.—Messrs. H. Brownson (25), and Street-Porter (24).

NATIONAL DIPLOMA EXAMINATION BOARD.

It was reported that the National Diploma Examination Board had held one meeting since the last meeting of the National Poultry Council, and had completed the arrangements for the Diploma Examinations to be held at the Lancashire Farm School, Hutton, near Preston, in September next. Letters had been received from the Ministry of Agriculture and the Board of Agriculture for Scotland, promising grants towards the cost of the examinations for the year ending March 31st next. The question of revision of the syllabus had been under consideration, but it was decided to issue the syllabus for the 1925 examination as soon as possible after the 1924 examinations were completed. In future institutions sending in candidates for the Diploma Examinations were being asked to give candidates opportunities or acquiring some experience in demonstrating and teaching. The Board had given very full consideration to the question of constitution of the Board, and now recommended that the National Poultry Council should revise the constitution and approve the limiting of the Board to the following representatives:—

Six representatives of the National Poultry Council. Six representatives of Government Departments. Six representatives of the leading Teaching Institutions. Three representatives of Associations now nominating representatives.

That the appointment of representatives of institution be for three years.

That the North of Ireland Department of Agriculture be invited to send one representative.

Mr. Foulkes ,in proposing the adoption of the report, said they felt it very desirable to bring in Ireland, and Mr. Street-Porter, seconding, said it was necessary to keep the balance right on the Board, and they must keep to themselves a fair representation. The alteration would give the Council another representative.

The following representatives were then appointed:—Messrs. E. Evans, P. H. Foulkes, T. R. Robinson, Street-Porter, C. Watson, and the President.

APPOINTMENT QUESTION.

Mr. Carlton Hunting said he was one who viewed with alarm the suggestion of the Ministry of Agriculture that an American or Canadian might be appointed to take charge of the Harper Adams' College, part of the Institute scheme. They did not see why one from abroad should come and teach poultry-keepers their business.

The President said the appointment was in the hands of the Governors of the College, and the whole of the cost came from the Development Fund under the control of the Ministry. The poultry industry had contributed only towards the buildings and equipment.

Mr. Street-Porter explained that it was no slur on Englishmen that an outsider had been considered, for in the States and in Canada vast sums had been spent on training scientists with special attention to the poultry industry.

The President added that they fully appreciated the desire to have an Englishman in charge, and the matter would be considered by the Advisory Committee.

VOTE OF THANKS.

It was proposed by the President, and seconded by Col. Sandbach, "That the delegates attending the National Poultry Parliament of 1924, hereby express to the Mayor of Salisbury and to the Corporation of that city, their warmest thanks for the welcome accorded to them during their visit to the city, and for the hospitality accorded in granting the use of the Council Chamber for the meetings.

"As the capital of a great agricultural county, apart from its own attractiveness, it is hoped that the meetings which have been held here will contribute to the advance of the poultry industry in the county, and to the greater prosperity of Salisbury.

"Further, at the same time acknowledgement is made of the cordial assistance given by the Wilts County Council during this visit to that county."

The President proposed, "That the delegates attending the National Poultry Parliament at Salisbury, desire to make grateful acknowledgment of the services of the local committee, and of its energetic secretary, Mrs. Knight, for the excellent arrangements made in respect to the visit to Salisbury and the county of Wilts. It hereby tenders to the ladies and gentlemen composing that committee grateful thanks for the help they have given in contributing to the pleasure as well as the success of the meetings."

Mr. Street-Porter seconded, and said it was nice to be able to see something of what others were doing in the district. The local committee had gone to much trouble. The resolution was heartily carried, and in reply Mrs. Knight said the Wiltshire County Council were very pleased to have the delegates. She personally thought the Parliament would do much to stimulate the work of the Council, and spread the knowledge in all parts of the country.

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for ninth period ending July 15th, 1924. Totals are for ninth month, and totals to date respectively:—

Section A.—1, Mr. C. F. Rivaz (W.L.), 91—539; 2, Mr. R. McKenzie (W.L.), 96—589; 3, Mr. S. Wilkinson, 85—524; 4, Mr. R. H. Hunter (W.L.), 95—569; 4, Mr. D. F. Lawrence (W.L.), 102—538; 5, Lieut.-Colonel Mailes (W.L.), 79—460; 6, Mr. D. W. Gunton (Pen B.), 73—470.

Section B.—1, Mr. J. H. Thompson (W.W.), 74—574; 2, Capt. Harper (R.I.R.), 37—507; 3, Barford Poultry Farm (R.I.R.), 51—503; 4, Mr. S. Wilkinson (W.W.), 35—468; 5, Mr D. W. Gunton (W.W.), 54—503; 6, Mr. J. H. Drew (Buff Rock), 48—524.

THE NATIONAL DUCK TEST.

The rules for the next National Duck Test are now ready, and can be obtained on application to the Hon. Secretary, National Duck Test, Bentley, Suffolk.

In order to encourage the small duck-keepers, the number of ducks required from each breeder will be three to a pen, except in the Championship Section, where five birds will be entered. All ducks will be trap-nested, and they will be run in separate flocks of not more than 50 each.

Numerous valuable cups and prizes are offered, amongst them a "Daily Mail" Championship Cup, open to all competitors.

Entries close 1st September.

Answers to Queries.

By the ***EDITOR.***

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

Leghorn-Sussex (Stokesley). As you do not wish the birds to come into lay before you send them to the test the only advice I can give you is not to give too much maize, or, rather do not give any maize at all now. Replace it with Sussex ground oats, and give the grain feed of equal parts oats and wheat. Do not allow the animal food to exceed 5 per cent., but be careful to send these birds in a condition to lay. If you attempt to check them by under-feeding you may find that when they arrive at the test, it will take some weeks before they get into condition. I should handle them occasionally to ascertain their condition. I am very pleased to hear you have had such an exceptionally good rearing season, and that you attribute this to the better feeding which you say you have taken from "Eggs."

"Peesweep" (Paisley). In reply to your letter with reference to the loss of your chicks. Buyers can only guarantee live delivery, and, therefore, he has fulfilled his contract if the chicks are delivered safely to you. You have no claim on him whatever. As the whole lot were dead in four days, I can only conclude that they were chilled on rail, but we have no proof of that, and even assuming it to be the case, it would be necessary for you to prove negligent packing on his part. I am sorry for your bad luck, and can only suggest that you should write to the vendor. He may be inclined to help you, although you have no legal claim on him whatever.

W. J. (Blackmill). No, scaly leg is not due to red mite, but to a parasite which burrows in the skin. The best treatment would be to soak the leg thoroughly with equal parts linseed oil and paraffin, or else with a two per cent. solution of Izal, taking care to keep it to the shanks, and not allow it to touch the skin. Also creosote the ends of the perches, as a parasite will often crawl along the perches and thus infect the birds.

E. W. (Lowthorpe). In further reply to yours. The sample of ground oats would be quite suitable for chick-rearing, and, of course, for adults. It will not be necessary to buy better for chicks. The sample of clover meal is fair average value. I think with your bran and middlings you should do very well on a mash of one part clover, one bran, four middlings, one maize meal, one S.G.O., and one meat and bone meal or fish meal. If, in addition to this, you give kibbled maize as the grain feed, your birds should be doing very well. Of course, so much would depend on the quality of your millers' offals—bran and thirds. When I say a sample is good value for money, I mean that it is good enough to feed. I should not think that a sample which was not good enough to feed would be good value for money.

E. H. L. K. (Longfield). Yes, both the Light Sussex and the R.I.R. could be kept quite successfully on the dry mash system. I note that you say you have kept your White Leghorns on this system with success, but the few Wyandottes you had were inclined to get fat, lazy, and broody. In the case of any heavy breeds showing this tendency I should begin the morning with a small feed of grain in the litter, say a handful for every five birds, as soon as they are off the perch. Let them work for this first, and open the hoppers about 10 o'clock. During the short winter months it would be better to open the hoppers directly they come off the perch. I would not try to ration them to 2 ozs. of dry mash a day. There is no fear whatever of your **real** layers getting overfat. It is the birds which are poor layers that have the tendency to put on fat.

"Spencers" (High Ongar). The formula you give is an old one of mine. As a laying mash it is very satisfactory, but for the breeding pen I would be inclined to modify it. Reduce the meat meal to half a pound, and for preference give meat and bone meal instead of meat meal. This would especially apply as your birds are on free range, where they would find abundance of insect life. I am very pleased to have your appreciation of "Eggs."

C .H. (Stockport). This is a very puzzling case. That these pullets should lay such a large number of shell-less eggs is very astonishing, particularly as you say that the breeder tells you that his birds, fed in exactly the same way, are not doing so. I suspected at first that the pullets had been frightened or they were in a very highly nervous state, but you say this is not the case, and that they have an ample supply of oyster shell and presumably green food. It is not uncommon for highly-fecund pullets to lay shell-less eggs when they make a start, and we must consider the individual and not the flock. We are dealing now with only three pullets, and two of these are not so bad as the one which laid first. I note that this pullet laid on the 19th June, again on the 21st, 22nd, 23rd, 24th (double yolked), 25th (shell-less), and the 26th (two shell-less). We can only say, then, that the feeding in the case of this particular bird was too stimulating, that she is one of those natural layers; one might almost say a phenomenal one, and that in her case the ordinary formula is a little too stimulating at present. When she gets over the first flush of her laying, I expect she will lay normal eggs. For the present I should feed her carefully. Give her a mild dose of Epsom salts, and make the mash formula of: 3 lbs. bran, 5 middlings, 2 Sussex ground oats, and half meat and bone meal. As the grain feed give equal parts wheat and good heavy oats.

S. W. H. S. (Carnarvonshire). Of the two samples of thirds No. 2 is rather the better. They are just average quality. The sample of ground oats is not "Sussex" ground, and whoever sold them as such is either ignorant or unscrupulous. They would not be worth more than 12s. cwt. A true sample of Sussex ground oats is creamy in colour, somewhat like flour to the touch, and the husk is hardly discernible. It is one of the worst samples I have ever seen sold as Sussex ground oats. The fish meal is of good average quality, but you should get some guarantee that the oil content does not exceed 4 per cent. The alfalfa meal is very stalky, but there is a good deal of the leaf in it, and, with the exception of its being stalky, it is a fair sample.

POST-MORTEMS.

W. K. B. Peritonitis, due to free yolk material in the body cavity was the cause in the case of the Black Leghorn. Although well nourished, the hen was in an unhealthy condition, the liver being degenerate and the internal fat oily, and of bad colour and consistance. We should advise omitting, for some time at any rate, the fish meal, and if desired to continue feeding it, to start with a very small percentage which may be very gradually increased. Fasting for twenty-four hours, and the administration, in the morning mash for at least a week, of twenty grains of glauber salts per head, should lower tension and be conducive to a more healthy condition.

The Hon. Mrs. S. The chick had pneumonia following on infestation with gape worms, the windpipe being packed with them. There is an article of Capt. Leeney's in a recent number of "Eggs" to which you are referred. The directions for Prevention we would particularly impress upon you, as treatment is not very successful except in fortifying against the worms by tonics and good living. They should be removed to fresh clean ground that has carried no birds this season.

G. H. H. The post-mortem examination on the Barnevelder hen showed the cause to be internal haemorrhage, due to the rupture of the liver, which was thickly studded with the tubercles of tuberculosis. She was the subject of a generalised tuberculosis, all the organs, etc., being affected. This being an infectious disease, we should advise you to send to the Ministry of Agriculture for a free copy of leaflet No. 78 dealing with this subject, which gives a useful summary of this malady.

W. W. The bones are interesting specimens of defective body chemistry, commonly referred to as rickets and described as a deficiency disease. That there is no deficiency of material is demonstrated by division of one of them which had become completely consolidated—a mass of bone instead of a hollow shaft. Just what this perverted nutrition is we cannot say. It is attributed to all sorts of conditions, and can be induced by semi-darkness and absence of vitamins, but its occurrence in healthful environment is also beyond question, and that it is hereditary, we think, beyond doubt. We do not regard it as contagious. It would be advisable to destroy the other bird showing signs of the malady. They are, of course, good for the table.

C. O. Le B. The post-mortem on the R.I.R. hen showed the cause to be apoplexy, due, we should say, to a too stimulating and fattening a diet ; the abdominal organs were loaded with fat, producing a plethoric condition. We should advise treating her associates by fasting for twenty-four hours, and then giving glauber salts, twenty grains per head, in the morning mash for one week.

W. A. T. In reference to the eye trouble in the White Leghorn chicken, we find that it was affected with a croupous conjunctivitis, the eye itself being intact. The exact cause of this condition has not yet been definitely determined, but on general principles it would be advisable to consider it as infectious, and promptly isolate any bird showing the slightest symptoms, such as closing the eyes, discharges, etc. The absence of any other lesions in the body confirms the opinion that it is purely a local condition and not a systematic one such as roup. We have had lately a case of the same kind under observation and treatment, and the results obtained justify the advisability of treatment. Affected birds should be isolated, and treated by gently removing any discharge or membrane by means of a small pledget of cotton wool wet with a boracic acid solution, and then a drop or so Collosol Argentum (obtainable from any chemist) dropped into the eyes with an eye dropper. This should be done twice daily until recovery.

G. A. M. This hen died of self-poisoning, the larger portion of the ovarium was dead and septic material was absorbed into the circulation. The "dropping" was the coma, which was to be expected from such a condition. She was, in fact, a victim of her virtues, having produced beyond her capacity. For associates similarly situated one might recommend a few fifteen grain doses of glauber salts in the breakfast, and reduced tension would follow any such saline treatment.

W. H. A. Although your losses suggest some infectious disease, we do not find this to be the case. The livers of both these chicks were in the embryonic stage, having never developed and unable to function. This would probably be due to inherited weakness, although your letter implies satisfaction with the health and age of the parents. It is, however, well known that a previous generation may be responsible for transmitting a defect. (2) No, we do not think any medical treatment would be of service in the case of undeveloped organs incapable of performing their part in providing the digestive substances.

D. B. The chickens referred to in your letter, dated 12.7.24, only arrived this morning, and in such a state that a post-mortem examination was impossible. Maggots had left nothing but bones and feathers. If you would kindly send us another specimen in a 5 per cent. solution of formalin in water, we shall be pleased to investigate and report. The ten shillings are placed to your credit, and we await your further instructions.

Messrs. S. and P. The W.W. pullet was suffering from an acute inflammation of the kidneys, which by preventing the proper functions of those organs caused poisoning of the whole system by the waste products that they should have got rid of. This is not an infectious trouble, but due to some fault in the food or feeding.

H. E. C. The post-mortem examination on the White Leghorn hen showed that she was the subject of blood poisoning from the absorption of decomposition products from abortive eggs which had died on the stalk. The diet appears to us rather too stimulating, and we would suggest the substitution of oats for the maize and a generous ration of green stuff. For the hens that are off their food we should advise a fast of twenty-four hours and a dose of fifteen grains per head of glauber salts, given in the morning mash.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

TABLE POULTRY.

To the Editor of "Eggs."

Dear Sir,—I hasten to reply to "Heathfield's" letter regarding the marketing of table poultry.

Let me state emphatically that during the time I have been writing my articles for "Eggs" I have been writing them for the benefit of the members of the S.P.B.A., and truthfully have not taken into consideration those engaged in Sussex, another part of the industry known as the Surrey Fowl Trade, because I really do not think that these people can be taught anything regarding the preparation and marketing of their poultry.

I believe I am very near the truth when I say that the majority of the members of the S.P.B.A know very little about this particular trade, and my own limited knowledge is that it cannot be carried out successfully anywhere else than in Sussex, although attempts in other parts of the country have been nearly but never absolutely successful.

After making the above statements it is unnecessary for me to say that the Monthly Advice Table, and the question of size, does not affect these particular people nor their birds, with the exception, as "Heathfield" says, that during July, August and September even a Surrey capon joins the remainder of the trade with a steadily decreasing realisation price.

With regard to what "Heathfield" says about the retail trade, I hope I shall be forgiven when I refuse to discuss this matter, seeing that I am in the wholesale market, but if one is to believe one-tenth of the tales which are told of what happened when most of us were on our "Continental Holidays," I sometimes wish my lines had fallen in the retail line instead of the wholesale; but perhaps over that part of the poultry trade we had better write, "Let us forget."

Regarding "Heathfield's" remarks anent American case fowls, I believe also the average member of the S.P.B.A. knows little or nothing about this. For their information the following are a few facts about them:—

In America in the fall of the year, when chicken are cheap, the big American combines kill and clean-pluck their chicken. After this they are graded in size and quality. Then they are packed 12 in a box and frozen.

In the following year they are brought over to England in refrigerator ships, and cold stored here. Then they are placed on the English markets at a time when the English producers cannot meet the English demand. It is really extraordinary how closely these chicken are graded, and it is possible to buy a box of 12 chicken of uniform size, ranging from 2½ lbs. to 5 lbs. each.

The industry is rather impracticable in England, and particularly to the individual, because it means that capital has got to be sunk in cold store stock from September and October to the following spring.

Possibly a co-operative society like that suggested by Mr. Hanson with a fair capital may be able to do it.

One of the American combines already does it in Ireland.

Regarding the question raised by "Heathfield" of the "Sussex Pad," this is a matter which should be discussed between Sussex fatteners, "en bloc," and the various markets.

The writer remembers that about 1904 his firm had Account Sales forms specially printed for the Co-operative Society or Association of the Sussex Fatteners, which he really believes was the first definite attempt at co-operation amongst producers of poultry.

The writer wonders whether the details of this Society, and its results and decease, could be made public.

Yours faithfully,
A. V. CLARKSON.

LONDON MARKET ADVICE TABLE, AUGUST, 1924.

Poultry producers ought now to be selling the bulk of their produce to the seaside or holiday resorts. The London poultry trade diminishes in proportion to this diverted demand, in addition to which this month the Game Season commences. Grouse which come in on the 12th materially affect the demand, and consequently the price of chicken. Towards the end of this month there is an increased demand for live old hens, owing to some religious festival of the Jews. This increased demand does not warrant senders holding their hens in the hope of getting a greatly enhanced price. It is a very open question whether the increase in realisation is not less than the cost of feeding and trouble.

SMALL SPRING CHICKEN.—Not wanted under 2½ lbs. when killed and clean plucked. Kill and clean pluck and gut, or send alive.

LARGE SPRING CHICKEN.—3½ lbs. or over. Kill and clean pluck and gut, or send alive.

General Remarks.—The salesman will supply you with crates carriage paid for live chicken if you ask him. It is really safer to send alive, for the salesman to kill and pluck the birds, rather than to send already prepared, because at this time of the year poultry is liable to turn green during transit. If sending alive never overcrowd the birds. It is illegal and cruel, and possibly several of the birds will be dead on arrival through suffocation. Never despatch poultry to market killed, but with the feathers left on.

OLD HENS.—4½ lbs. or over. Send alive.

General Remarks.—Senders should avoid sending hens to market which have dropsy. These in the markets are called Walter Bellies.

LIGHT BREED HENS.—Send alive.

General Remarks.—Light breed hens sell very badly on London markets owing to the fact that large numbers of them are sold in local markets at a very low figure, many only realising 1s. to 1s. 6d. each.

WHITE DUCKS.—4½ lbs. or over. Send killed and clean plucked.

COLOURED DUCKS.—General Remarks.—Coloured or Runner Ducks under 4½ lbs. are practically unsaleable on the London markets, and it is more profitable to sell locally and avoid carriage and possibly commission.

RABBITS.—It does not pay to send Suckers. Clean paunched and cooled prior to sending. Use special open hanging crates to be obtained from the salesman.

General Remarks.—The real supply and demand for rabbits does not commence until September, but there are spasmodic arrivals of rabbits which are caught during harvesting, but they do not realise a very good price. Rabbits which are trapped make more than shot rabbits.

APPLICATIONS FOR MEMBERSHIP.

Fosberry, F. W., Sandmere P.F., Sidley, Bexhill-on-Sea, Sussex.
Bowden, H. E., Gun Hill Croft, Horeham Road, Sussex.
Traylen, H. E., "Our Farm," Karachi, India.
Smith, Miss E., Deepdene, Hunstanton, Norfolk.
Burgess, Capt. H. S., Ridgeway Poultry Farm, Hullbridge Road, Rayleigh, Essex.
Shoemack, F. W., 5, Bank Buildings, New Milton, Lymington, Hants.
Compton, Frank H., Kingswood P. Farm, New Haw, Addlestone, Surrey.
Elliston, W. R., Steventon Firs, Micheldever, Hants.
Philcox, Miss D., Orchard House, St. John's Road, Bexhill-on-Sea.
Hanning, G. Hugh, Rockland Rectory, Attleborough, Norfolk.
Wainwright, Percy, Sheepwalks, Castleford, Yorks.
Mathuson, Miss J. W., Fresh Air House, Peesweep, Paisley.
Hardstaff, G. K. (Jun.), Chapel Lane, Fishpool, Blidworth, near Mansfield.

THE NATIONAL POULTRY INSTITUTE.

Report presented to the National Poultry Parliament, July 16th, 1924, by Mr. P. A. Francis, Poultry Commissioner, representing the Ministry of Agriculture and Fisheries.

All the arrangements for commencing work in five of the six sections provided for under the National Poultry Institute scheme are now completed. It will be remembered that the original scheme, the general plan of which has not been in any way altered, aimed at the provision of centres as follows:—(1) a new centre for higher instruction and commercial experiments in poultry husbandry to be located at Harper-Adams' College; (2) scientific research in problems of poultry breeding, at the School of Agriculture, Cambridge; (3) scientific research in the problems of poultry nutrition at the School of Agriculture, Cambridge; (4) scientific research in poultry diseases at the Ministry's Veterinary Laboratory; (5) practical experiments in the North of England in the breeding of poultry for egg production, and (6) practical breeding experiments in the South of England in table poultry production. Active work is now proceeding in all these sections except the new educational centre at Harper Adams' College.

As regards the Harper-Adams' College parts of the scheme, the first step will be to secure the services of a director possessing the requisite technical and academic qualifications and experience to take charge of the work under the Principal of the College. The Governors of the College have been authorised to invite applications for this post, and it is understood that, in response to announcements widely advertised in the poultry press and elsewhere, a considerable number of applications have been received. These are now being considered by the Governors, who will be responsible for making the actual appointment, subject to confirmation by the Ministry of Agriculture, after consulting the National Poultry Institute Advisory Committee. As soon as practicable after the new director has taken up his duties, detailed proposals, with estimates, will be made for the commencement of work under this part of the scheme.

BREEDING RESEARCH.

The new buildings for research in problems of breeding (i.e., a laboratory and cottage) are now completed; but the laboratory has not yet been equipped with the necessary fittings. A beginning has, however, been made with the actual breeding investigations, a programme having been drawn up for a series of experiments designed to throw light upon the inheritance of fecundity, which is regarded as the main line of investigation. But from the very nature of the work, at least two and a half years more must elapse before even a preliminary report can be framed; for even this cannot be done without the evidence afforded by three successive generations of birds.

NUTRITION RESEARCH.

In connection with the research work into problems of poultry nutrition at Cambridge, the erection of buildings, etc., has now been completed, and these are being used. The following is an outline of the programme of research now in operation:—

Partition of Nitrogen of Urinary and Foecal Origin.—Dr. H. E. Woodman has already evolved a satisfactory method for the quantitative estimation of uric acid in poultry excreta. It is hoped that information will be obtained from this method which will enable the investigators to invoke the chemical method of separation of the urinary and foecal nitrogenous constituents from the excreta of normal birds. The methods already in use are not considered reliable.

(To be Continued.)

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 25th JULY, 1924.

GRAIN AND FEEDING STUFFS.—A good demand exists fo imported wheats, and all quotations are considerably highe but the prices now ruling tend to check business. Manitoba No. averages 13s. 6d. per cwt., an increase of 7d. per cwt. on th week, and prices for other descriptions are similarly advanced Barley is in firm demand, and prices for most imported descri tions show a rise, while quotations for oats are also decidedl firmer, spot supplies being moderate. No. 2 Canada Wester oats average 9s. 10d. and Argentine 8s. 5d. per cwt., agains 9s. 6d and 8s. 4d., respectively, last week. Argentine maize again slightly dearer at an average of 8s. 11d. per cwt., althoug large arrivals at Hull resulted in a slight reduction at tha market. British bran shows a further rise of about 6s. per to and now averages £6 18s. per ton, while coarse middlings ar generally in good request and dearer. A further advance o about 10s. per ton is realised for linseed cake, owing to th price of seed.

MILLERS' OFFALS.—Bran (British): Bristol, £7 15s.; Hull £6 7s.; Liverpool, £6 10s.; London, £7 2s. Broad Bran: Hull, £ 12s.; London, £8. Middlings:—Fine (Imported): London, £10 Coarse (British): Bristol, £10 5s.; Hull, £9 5s.; Liverpool, £9 London, £9 12s. Pollards (Imported): Bristol, £8 15s.; Hull, £ 10s.; Liverpool, £7 7s. Rice Bran: Bristol, £7 17s.; Liverpool £7 15s. MEAL.—Barley Meal: Bristol, £12 5s.; Hull, £11 17s. London, £12 Maize Meal: Bristol, £10 15s.; Hull, £9 17s.; Liverpool, £10; London, £10 15s. Maize Germ Meal: Bristol, £10 10s. Hull, £9 15s.; London, £9 17s. Maize Gluten Feed: Bristol, £11 London, £9 5s.

EGGS AND DEAD POULTRY.

A general reduction for all classes of eggs at London ha caused average prices to drop slightly, but quotations are un altered at both Bristol and Liverpool. Nearly all descriptions o fowls make last week's prices, but, at London, ducklings ar reported to be plentiful and realise 2d. per lb. less money.

Week-end Prices—Eggs (per 120): British: 18s., 17s.: Irish 16s., 15s. 6d.; Danish: 17s. 6d., 15s. 6d.; Dutch: 19s., 16s. 9d.: Russian 11s. 3d., 9s. 6d.; Belgian: 16s. 6d., 16s.; Italian: 15s. 6d., 15s. Lithuanian: 14s. 6d., 10s. 9d.; Chinese: 12s. 6d., 12s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 6d., 2s.; Irish 1s. 9d., 1s. 6d.; Others, 2s. 3d., 1s. 6d. Ducks, 1s. 4d., 11d. Geese 1s. 0d., 8d.

EGGS.

Per Doz.—Ashford: First, 2s. 1d.; Second, 1s. 10d. Birmingham: First, 1s. 10½d.; Second, 1s. 9d. Bridgwater: First, 1s. 10d. Second, 1s. 7d. Carlisle: First, 1s 10d. Chelmsford: First, 2s. 2½d. Second, 2s. 0d. Denbigh: First, 1s. 10d.; Second, 1s. 9d. Derby First, 1s 7½d. Dorchester: First, 1s. 7½d. Exeter: First, 1s. 11d Hereford: First, 1s. 7d. Ipswich: First, 2s. 0d.; Second, 1s. 10d King's Lynn: First, 1s. 9d.; Second, 1s. 8d. Lincoln: First, 1s. 8d Llandilo: First, 1s. 6d. Montgomery: First, 1s. 6d. Newport (Mon.) First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 1s. 9½d. Oswestry 1s. 10d.; Second, 1s. 9d. Penzance: First, 1s. 7d.; Second, 1s. 6d Salisbury; First, 1s. 9½d.; Second, 1s. 8½d. Shrewsbury: First 1s. 9d.; Second, 1s. 8d. Skipton: First, 1s. 4d. Truro: First, 1s. 7d. Second, 1s. 6d. York: First, 1s. 10d.; Second, 1s. 9d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 9d. Derby: First *5s. 9d.; Second, *3s. 3d. Exeter: First, 1s. 8d. Hereford: First 1s. 6d. Ipswich: First, 1s. 9d. Lincoln: First, *5s. 0d.; Second *3s. 6d. Llandilo: First, 1s. 10d.; Second, 1s. 8d. Newport (Mon.) First, 1s 10d.; Second,, 1s. 7d. Truro: First, 1s. 5d. York: First *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 1s. 3d. Derby First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 7d. Hereford First, 1s. 4d. Llandilo: First, 1s. 10d.; Second, 1s. 8d. Newpor Mon.): First, 1s. 6d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 6th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

SELECTION.

A correspondent writes:—

> "I have been very much interested in your recent articles on Pedigree and Breeding, and wish you would elaborate them. For instance, can you give us some idea why selection for a specific factor is at the expense of other factors; type—for example? Does it follow that wide variation may not occur without there having been selection for a specific factor? Also, why are line-bred birds more prepotent than those which are not line-bred?"

We do not think there is need for elaboration, but will try and comply with our correspondent's request.

Answering his second question: Darwin mentions the case of two flocks of Leicester sheep, which have been purely bred from the original flock for upwards of 50 years. Neither breeder had deviated from the pure blood of the original, yet the difference between the two flocks was so great that they had the appearance of being two different varieties.

Here we have no mention of breeding for a specific character. Had selection been made in the one case for wool, and in the other for mutton, the difference between the two flocks would have been easily understood. As it is we can only assume that these differences were the cumulative effects of years of breeding; originally they may not have been very distinct, but as the blood lines remained pure, and like tends to breed like, they would become the dominant characters of the flock.

In answer to the question why selection for a specific factor is at the expense of others, that is not difficult to answer. The difference in our utility strains of White Leghorns is very noticeable, and it is sometimes attributed to out-crossing. That may have been so in a few cases, but it is not the main cause. We visited a certain commercial egg farm the other day, where there are two well-known strains of White Leghorns. The difference in this case was very pronounced, so much so that there was no difficulty in saying that is A's and that is B's, and this did not imply that one was pure, and one was not. It was simply a question of selection on rather different lines. Both breeders had high fecundity in view, but in the one case type had been wholly ignored; in the other it had been kept well in view.

"B" type is rather a large bird, longer in the back than "A.," so much so that one might suggest that there had been an out-cross with the White Rock, but we know that is not so. Many of the pullets showed red in lobe, and they were rather high on the leg, and most of them had light eyes.

"A.," on the contrary, were, if anything, a little too small, but in all other respects they were typical Leghorns, with red eyes, very few showed any red in lobe. "B." rather favoured the exhibition type, and they were not nearly so typical as "A."

Now we may take it that "B." ignored everything but the specific character, for which he was breeding, viz., high fecundity. His foundation stock were none too typical; they were too high on the leg in the first place, and as tallness is dominant to shortness, that characteristic has been perpetuated. There was red in lobe, which is dominant to white, and the light eye, which is frequently dominant to red. The long back would be the same as the long legs. Thus we see how selection for a specific character may be against type, and may perpetuate a strain, which, although pure, is not typical. If we crossed "B." with "A." we should not effect any great improvement without rigorous selection over a number of years, for the characteristics of "B." are dominant to those of "A."

If one breeds the Croad Langshan for heavy egg production, we find that unless great care is taken in selection, there is a distinct tendency for the breed to lose size, to become tighter in feather, and for the eggs to lose their wonderful colour. As mentioned before, because of the tendency of highly fecund stock to mature early, there is always the tendency to loss of body size. This may be carried to such an extreme as to be against fertility, vigour and longevity.

If we take selection from another point of view, and make size and feather or purity of colour our fetish; we know in the first case that it is necessary to select the bird which is slow to mature sexually in order to obtain size, heavy production and early maturity are linked together, and the bird which matures early sexually will never attain the size which is the desideratum of many breeds in the show pen. With regard to feather, all heavy producers tend to tight feather, because they draw on the fat which is deposited under the skin, which nourishes the feather. and causes it to become long and soft. With regard to purity of colour, while not for a moment suggesting that it is not possible to breed a good coloured bird, which will not be highly fecund, it will be admitted that if this is made a fetish, it will mean that a very large number of high producers will have to be discarded. When colour has become a fetish, it has frequently been at the expense of type.

The last question is: "Why are line-bred birds more prepotent than those which are not?"

It should be remembered that in the first place we are dealing with exceptional individuals; in the second that line-breeding excludes every character outside the chosen line of breeding. It combines in the individual the desired characters to the exclusion of others, and that these characters are the characters of his ancestry, so that he has the full force of the latter behind him—unalloyed, so to speak. The fact that all other characters are excluded permits the fullest expression to be given to those on which selection is based.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

BRESSE.

Mrs. Onslow Piercy writes:—

"Dear Mr. Newman,—I have received an interesting letter from a French correspondent whose opinion I greatly value, and who, though too modest to permit me to disclose his identity, is an acknowledged Bresse authority. My correspondent refers to the question of the size of Bresse, which, admittedly no new subject for discussion, is put forward in an interesting manner, and is, I think, likely to commend itself to everyone who is interested in the breed. The writer is a well-known poultry journalist, and has contributed Bresse articles to all the principal Continental poultry papers for the last twenty years. His fame as a breeder of all three varieties of Bresse is indisputable. Here is an extract from his letter:—'Although the very small and the very large have always fascinated humanity, and all the old legends and fairy stories are full of both dwarfs and giants, it is refreshing to note that some of the leading Bresse breeders are fully alive to the importance of keeping the breed strictly medium, so it may retain its real economical qualities. The real typical Bresse, with close feathering and good colour is a very elegant bird, with an aristocratic bearing, that we cannot too strongly condemn the people who try to alter the beautiful race of Bresse to their own ideas—ideas repugnant to me. I agree with you that undersized Bresse are undesirable, but we must refuse to accept as 'thoroughbreds' the extra large birds. The heavy fleshy comb, larger lobe, and coarser bone of the Minorca must not be allowed to spoil the original; nor must we tolerate the Leghorn characteristics in any variety of Bresse, and I hope British breeders will stand firm and deprecate every attempt to coarsen the breed.' My correspondent writes 'Bresse-sense,' as he always does, for there must be always a limit at which size becomes a disadvantage, especially when it is size minus quality and first-rate layers of good-sized eggs."

There is hardly a fowl in existence which has not suffered more or less from the extremists. The Bresse is rapidly attaining the popularity which its great economic qualities merit. We must save it from the extremist. Certainly we do not want too small a bird, but I doubt whether the appearance of a few undersized specimens at shows is sufficient to warrant the clamour for increased size. Let us distinguish between the *undersized* and the *small*. Bresse are a small breed, but not uneconomically so; any effort to *increase* size may make them uneconomic. We must remember that one of the distinguishing characteristics of the breed is the fine bone, because of this they mature early, are very easily fattened and make a superb table fowl. There is no breed which so readily lends itself to fattening as the Bresse, and no breed so valuable for the spring chicken trade. There are two ways of increasing size, and neither are economical. The one is to select the birds which are slowest to mature, and the other to resort to out-crossing. The latter is unthinkable. I don't care how clever a breeder may be, an outcross can only prove detrimental to a breed like the Bresse. I would just as soon think of crossing our Old English Game or the Dorking to "improve" them. As to selecting the birds which are slow to mature to increase size, that was done in the case of the Minorca, and it turned a most prolific and economical fowl into an uneconomic dud. It became a breed of the hobbyist, instead of the commercial man. We don't want increased size in the Bresse, we want to *maintain it*. We don't want to encourage size, but we do wont to penalise the undersized bird. That may seem a bit ambiguous, but I think you will see that I mean, we want the medium sized bird. It is a precocious breed, and it would be a mistake to encourage precocity as distinct from early maturity. Above all, let us keep to type. I must confess that this call for increased size worries me. I have seen so many breeds ruined by the demand for size, and if the Bresse becomes a large coarse bird it is doomed for all purposes. Another correspondent writes in reference to our rather stupid habit of writing or speak of White "la" Bresse or Black "la" Bresse. An elementary knowledge of French should teach us the absurdity of the "la." I hope judges of Bresse will keep a jealous eye on the headpoints. We want the "gipsy" face, the dark eye, and the comb and wattles must not be developed as in the case of the Leghorn.

WHAT IS A PULLET?

Last year the Council appointed a committee to meet delegates of the Poultry Club and N.U.P.S. to endeavour to arrive at an agreed definition of a pullet We failed to agree, as I expected we should. It was nobody's fault; we simply couldn't agree. But is it not time the S.P.B.A. had a definition? One can appreciate the absurdity of advertising "pullets" 1922 *hatched*, as appeared in these columns the other day. I hope it won't occur again. If we as a society had a definition, I think it would simplify matters very much. At least there would be a perfect understanding between our members as to what is meant to be a pullet. I suggest this: "That a pullet shall become a hen in June of the year following the one in which she is hatched. Thus a pullet hatched in April this year would become a hen for selling purposes in June next.

A LONG SEQUENCE.

In our issue of July 16th we published the phenomenal record of the R.I. Red pullet owned by Mr. Guy Adams, at the Wilts County Laying Trials, which laid 268 eggs in 265 consecutive days.

I have received several records from all parts of the country in response to my invitation, when publishing that of the Rev. Green Wilkinson's White Leghorn pullets, but none of them the approach the pullet of which Mr. Guy Adams is the proud owner.

It is interesting to notice that this has been beaten, in what is described as the "world's record" for a laying duck, namely, 225 eggs in 225 consecutive days.

As Mr. Adams' pullet is far ahead of any others I have received, there is no interest in publishing them.

Messrs. E. and T. Hunter, however, write to say that they have a Buff Rock pullet which laid 117 eggs in 117 consecutive days, and had laid 266 up to July 7th, and that her eggs were all a good size and colour. They add they have had a splendid hatching and rearing season with very few losses—a fact which they put down to the liberal use of goats' milk which has been supplied to the youngsters.

Modern Poultry Feeding.

By TOM NEWMAN.

MODERN POULTRY FEEDING.

"OFF THEIR LEGS."

Recently I have had several letters from readers complaining of the growing stock "going off its legs." In a few cases there was no apparent reason for this, and one could only attribute it to some inherent weakness, but in others the cause was not so hard to determine. It was due to too stimulating a diet, an excess of animal protein, with a deficiency of mineral salts, more particularly lime salts. Here are three mashes which were sent with three different cases:—

(A.): Two middlings, one biscuit meal, half meat meal. Parts by measure. Grain: Equal parts wheat, oats and maize.

(B.): Four parts biscuit meal, one meat meal, dried off with equal parts ground oats and middlings. Grain: Wheat.

(C.): Four middlings, 1½ maize meal, 1½ S.G.O., one fish meal. Parts by measure. Grain: Wheat and oats.

In the last case the birds were on free range, and they would find an abundance of insect life, which would tend to make matters worse. Growing stock and layers, on free range, don't want animal food in the mash at this time of the year. There was a great excess of fish meal in the above formula, which could not be compensated for by the fact that it is rich in lime phosphates. In the other two mashes there was a deficiency of lime, and the animal protein was very excessive; moreover the birds were kept in confined runs, and in the case of B. the owner made matters worse by taking the birds off the mash, and feeding solely on wheat for the time being.

In the case of A. the mash was adjusted as follows: Meat and bone meal was substituted for meat meal, one part bran and one part alfalfa meal added. Ten days after this had been changed no further cases had occurred. The majority of the others recovered, but two or three had to be killed, and two or three will never be right.

B. was a worse case. The mash was adjusted as with A., the ground oats instead of the biscuit meal being the only difference; but feeding on wheat only had made it more difficult. However, a definite improvement was effected. Apart from the leg-weakness the birds got badly out of condition. It is interesting to note that in all three cases a larger number of cockerels were affected than pullets.

In C. the fish meal was entirely omitted from the mash, the maize meal and Sussex ground oats reduced to one part each, and two parts bran added. These birds made the quickest and most complete recovery.

When these cases occur, it is not advisable to shut the patients up in hampers, as so many people do; on the contrary, they should be encouraged to get about in the fresh air as much as possible. My experience has been that it does not help in the least to use embrocations on the legs.

It is a very great mistake to feed growing stock on excessive quantity of animal food, and it should be remembered our object is first to build up frame and muscle; therefore it is equally a mistake to overdo the carbonaceous foods such as maize, biscuit meal, etc. When the birds have got their adult plumage we can gradually increase these, so that they shall be in good bodily condition when October comes, and we want the winter egg.

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale.

(Continued.)

Ducks.—It was not expected that ducks could be reared on this diet without extra B. vitamin, but it was necessary to prove this by experiment.

Four day-old Aylesbury ducklings were used. All died by the 30th day.

Twelve day-old White Runner ducklings were then used for testing the diet with the addition of 0.25g. marmite per 30g. oatmeal.

After showing the typical symptoms of polyneuritis five died in the first week. The quantity of marmite was too small, and it was raised to 0.75g. per 30g. oatmeal, 0.5cc. cod liver oil was also included on the tenth day. The ducks flourished for the next two weeks. The marmite was then reduced to 0.5g. per 30g. oatmeal. One duck subsequently died on the 30th day, and two other ducks were observed with a sort of contracted neck; one was better the next day. The other recovered after giving it several doses of 1g. marmite in water.

The duck thus got ill on 0.5g. marmite, and it was again raised to 0.75g. per 30g. oatmeal. They were then kept in good health till the experiment was terminated in the 15th week.

Ducks appear to need 0.75g. marmite per 30g. oatmeal—i.e., more than chickens.

Geese.—With the failures to rear chicks and ducklings without extra B. vitamin, it did not seem advisable to start day-old goslings on the above diet without marmite. A small addition of 0.25g. per 30g. oatmeal was therefore made. Thirteen birds were used in the experiment. They gained in weight 51g. during the first week. Two died on the eighth day, no cause of death could be found on post-mortem examination.

The amount of marmite was too little, and it was raised up to 0.5g. per 30g. oatmeal.

Two more died on the ninth day. The others looked ill, and in order to try and avoid losing them they were given doses of 4cc. and 2 per cent. marmite. Six more, however, died. Their intestines were found full of undigested oatmeal, and in one case there was perforation of the intestine.

Extra A. vitamin had not been added to the food, so 0.5, later 1cc. of cod liver oil was included, per 90g. oatmeal.

The three remaining birds survived the fourth week though their condition was not satisfactory; one of them died in the fifth week.

Marmite was then raised to 0.75g. per 30g. oatmeal. With this addition the two survivors were kept for 16 weeks without any signs of illness. They weighed on the average 5835g. at this time. 0.75g. marmite per 30g. oatmeal, the same as for ducks, appears to be required for geese on the above diet.

Guinea Fowl.—No attempt was made to rear these birds without extra B. vitamin in the food at the start. An addition of 0.5g. marmite per 30g. oatmeal was made. Cod liver oil, at first 0.5, later 1cc., was also included to conform with the other groups.

Five day-old and six rather older birds were used. Four died during the first three weeks. The marmite was, therefore, raised to 0.75g. per 30g. oatmeal. After this increase no further birds were lost. The experiment lasted for 13 weeks.

Turkeys.—On account of the known difficulties of rearing turkeys an addition of 0.5g. marmite was made to the food at the start. 1cc. of cod liver oil was also included.

Ten day-old birds were used. They did not like the diet, and ate little. Six died during the first week; the others gained 6g.

Marmite was at once raised to 0.75 per 30g. oatmeal. The remaining four gained 15g. during the second week. Three were now unfortunately lost by fire in the brooder. The last bird grew steadily but slowly each week, but in the tenth week it met with some accident, and damaged its leg and was chloroformed. 0.75g. per 30g. oatmeal seems to be required by turkeys.

Pheasants.—Twelve day-old pheasants were used in the experiment.

They were started on the food with 0.5g. marmite per 30g. oatmeal, and 1cc. cod liver oil per 90g.

One died during the second week. A second broke its leg and had to be chloroformed.

Three died in the third week, and were found to have enlarged caeca causing stoppage of the gut.

The marmite was raised to 0.75g. per 30g. oatmeal. One more loss occurred in the fifth week. The remainder, except one which damaged its leg, and was chloroformed, were kept for 12 weeks without any signs of illness.

The birds grew slowly, and their feathering was very slow.

The diet, though correct in the amount of B. vitamin, was evidently not suitable in respect of other ingredients.

GENERAL CONCLUSIONS UPON THE COMPARISON.

The B. vitamin requirements of various birds is thus different. Adult pigeons need least. Young pigeons need 0.5g. per 30g. oatmeal. Chicks need 0.5g., the other birds 0.75g. per 30g. oatmeal.

In all cases better results would be likely to follow, if the marmite were put 0.25g. higher. The quantities seem to be the minimum. Upon the minimum some birds will thrive and others die owing to some slight difference in individuality.

The differences in the requirements of the various kinds of birds are so small that there may be some simple explanation. The early symptoms of deficiency are always in connection with the intestines and undigested food. Young pigeons need extra B. vitamin, whilst their parents do not. It is suggested that this may be due to the different powers of digestion in the various birds, especially during the first few weeks. It is well-known in animals that the digestive enzymes or ferments are developed at different ages. The development and function of the enzymes is perhaps connected with the B. vitamin in the food. In the case of a food like oatmeal, its complete digestion must happen before the B. vitamin is set free for its function.

It is hoped to repeat the experiments on the rice diet during the next season.

THE NATIONAL POULTRY INSTITUTE.

NUTRITION RESEARCH.—Continued.

Digestibility.—Digestibility determinations of Sussex ground oats and maize meal have been undertaken with four White Leghorn cockerels. Complete results will not be available until the matter of the partition of nitrogen as between urinary and foecal origin respectively has been settled. Preliminary figures so far obtained show close approximation to Kaupp's and Ivey's digestibility co-officients, and indicate that the digestibility of the fibre of oats is little affected by grinding.

Future Digestibility Determinations.—In the immediate future it is intended to determine the digestibility of (1) the oats from which the Sussex ground oats already used for experiments was made; (2) the maize from which the maize meal already used for experiments was made; and (3) two strong wheats (Yeoman and Durum) and two weak wheats (Swedish Iron and Rivett). The determination of the digestibility values of weak and strong wheats is considered to be of immediate economic importance.

Mineral Balance Experiments.—An attempt has been made to ascertain the calcium, sulphur, nitrogen, phosphorus and energy balance of pullets prior to and during egg laying. Two White Leghorn pullets have been used for this experiment, and the material necessary for the determination of these balances has been collected over a period of fourteen weeks. The analytical work involved is heavy, and several months must elapse before the results can be collated.

Comparative Slaughter Experiment.—Two hundred White Leghorn eggs have been incubated to form material for slaughter and analysis at different ages from the egg to maturity. Samples have already been prepared and bottled for analysis as follows:—(1) New-laid eggs; (2) fourteenth day incubation; (3) "pipping" stage of hatching; (4) seven-day-old chicks; (5) three-weeks-old chicks. Further material will be collected at intervals of one month.

Method of Absorption of Yolk Sac Material.—One hundred White Leghorn eggs have been incubated in order to trace as far as possible the nature of the changes undergone by the yolk sac and its contents from the tenth day of incubation onwards and its relationship to the alimentary canal. The following facts have been elicited: (1) At no time is there any tubular connection between the yolk sac and the interior of the gut. (2) The intestines, which lie outside the body in the earlier stages of incubation, are drawn into the body on the nineteenth day, and not on the fifteenth, as stated by some scientists. (3) The yolk sac is drawn into the body cavity during the twentieth day of incubation.

DISEASE RESEARCH.

The new buildings and equipment for research work in poultry diseases at the Ministry's veterinary laboratory have been completed, and are now ready for use. Actual research work in connection with poultry diseases has been carried on in the main laboratory for over two years, and an enormous amount of post-mortem work has also been done for poultry owners. Actual research work has been conducted in connection with the following diseases:—Fowl cholera, fowl typhoid, bacillary white diarrhoea, fowl plague, tuberculosis, avian diphtheria, bird pox, coccidiosis, blackhead, etc.

The progress of the research work has recently been delayed owing to the officer who was primarily in charge of it having secured another appointment elsewhere. The services of a suitable officer to take his place, have, however, been obtained, and the work will now proceed on methodical lines.

NORTHERN BREEDING EXPERIMENTS.

A special Sub-Committee of the National Poultry Institute Advisory Committee has been appointed to deal with the Northern experiments in breeding poultry for egg production, and is at present constituted as follows:—Professor S. J. Hickson, D.Sc., F.R.S., Chairman (nominated by the Ministry); Messrs. J. Edmondson, W. Sutton, J. Wrennall, C. Longbottom, G. R. Poole (nominated by the National Poultry Council); Principal W. B. Mercer, of the Reaseheath School of Agriculture (nominated by the Ministry); Messrs. F. Snowden and D. C. Hesketh (co-opted by the Sub-Committee); and Mr. W. Thompson (nominated by the National Poultry Council in place of Mr. Hamnett, appointed a member of the Main Committee) with Mr. F. Glover, of the Ministry, as Secretary.

The Sub-Committee held its first meeting on September 4th last, and at once proceeded to draw up its scheme of experiments, as follows:—

(1) To test experimentally the effect of inbreeding with certain selected strains of fowls, by mating together brother and sister, dam and son, sire and daughter, dam and grandson, etc., the relative fecundity of the matings to be carefully recorded.
(2) To test the effect of out-breeding on fecundity in certain selected strains of fowls.
(3) Concurrently with (1) and (2), to make observations on the strains employed in order to obtain evidence on the question whether there is, or is not, a linkage between external characters and fecundity.
(4) Concurrently with (1) and (2) to record any data bearing on the possibility of building up a strain of pullet breeders.

The Sub-Committee sent its scheme of experiment to the County Councils of Lancashire and Cheshire with a suggestion that facilities for the experiments might be provided either at the Lancashire County Farm at Hutton, or at the Cheshire School of Agriculture, Reaseheath. Both Councils offered facilities readily on certain conditions, and after consideration the Sub-Committee recommended that the offer of the Cheshire County Council should be accepted. A very suitable site on old turf over well-drained soil, easily accessible from a main road, was accordingly secured.

The Sub-Committee, after this, got very quickly to work in making arrangements for the provision of the necessary accommodation and equipment for their experiments, and by March 31st last practically all the plant and appliances required were on the site at Reaseheath and ready for use.

The majority of the female stock required for the experiments was purchased at the auction sales held at the egg-laying trials in Lancashire in November, 1923. These included good layers as well as bad layers of the following breeds:—White Wyandottes, White Leghorns, Rhode Island Reds. The initial stock were mated during the third week in March, and the poultryman to conduct the experiments was engaged to take up his duties on April 1st last.

SOUTHERN BREEDING EXPERIMENTS.

The Sub-Committee which is dealing with the Southern Breeding Experiments in the production of table poultry, held its first meeting on September 25th, 1923, and is at present constituted as follows:—Principal R. M. Wilson, B.Sc., Chairman (appointed by the Ministry); Messrs. Harold Corrie, J. H. Dowden, A. P. F. Grant, and the Rev. H. Mayall (nominated by the National Poultry Council); Mr. Thomas Neame, co-opted by the Sub-Committee in place of Dr. J. L. Rosedale (resigned), Mr. Neilson Kenward (nominated by the Ministry); Mr. A. S. Juniper, co-opted, and P. Hedworth Foulkes, B.Sc. (nominated by the Main Committee), with Mr. C. T. Stock, of the Ministry, as Secretary.

A site for the experiments has been generously provided by the Governors of Wye College, and is situated on the College Farm, a water supply having been specially laid on to the site free of charge.

The Sub-Committee has decided to begin its work with experiments on the following lines:—

(1) To ascertain the amount of weight and value of weight gained by various breeds and cross-breeds of poultry in relation to the weight and value of food consumed; also the feeding costs of finished fowls for the table and the best breeds or cross-breeds to use for this purpose.
(2) To ascertain the most profitable methods of feeding and marketing birds produced as a by-product on commercial egg farms.
(3) To ascertain the value for table purposes of the breeds most generally used by commercial egg farmers, as compared with the breeds and cross-breeds usually regarded as best for table use; also whether it is likely to be profitable for commercial egg farmers to continue producing chickens for table use, from the birds they usually keep, at times of the year other than the usual season for hatching laying fowls, and, if so, what are the best methods of feeding and marketing the birds.

The experiments have been begun with a small number of breeding pens composed of the following breeds and cross-breeds: White Leghorn, White Wyandotte, Rhode Island Red, Light Sussex, Indian Game crossed with Light Sussex, Silver Grey Dorking crossed with Light Sussex. All suitable eggs laid by these birds will, if practicable, be incubated under hens during the whole of the first year of the experiments, and the resulting chickens will be divided into four lots and marketed as (a) Petit Poussins; (b) chickens off the run; (c) trough-fed chickens; (d) chickens finished by cramming.

All the breeding stock has been purchased with the exception of two Silver Grey Dorking cockerels. Approximately 400 chickens have been hatched, and will form the nucleus for the experiments. It has, however, unfortunately been necessary to kill off the Rhode Island Reds chicks, owing to an outbreak of what appears to be bacillary white diarrhoea. Blood samples are now being taken from the parent birds of these chicks with a view to examination at the Ministry's Veterinary Laboratory.

All the accommodation and equipment for the experiments has been provided and is now in use. A Manager Recorder and a

Poultryman have been appointed, and took up their duties on March 3rd last. The Sub-Committee is at present engaged in some test experiments preparatory to experiments during a full year on the lines indicated above, which it is hoped will commence not later than the beginning of next year.

Three-fourths of the capital outlay in connection with all the above work is being provided out of the Development Fund, the remaining one-fourth being contributed by the Poultry Industry. All the cost of maintenance is being met out of the Development Fund.

GOATS AND POULTRY-KEEPING.

ARTICLE I.

The great advantage that the goat has over any other milch animal is that its milk is non-tubercular, this form of disease being almost non-existent in the goat. I cannot say it is quite unknown, for undoubted cases have occurred, but they have been so rare as to be quite negligible. The milk has other unusual features that render it particularly valuable as a diet for babies, and that great body of adults who cannot really digest cow's milk, as evidenced by the extraordinary prevalence of constipation that invariably accompanies a diet where milk (cow's) is largely used. I think it is this great digestibility of the milk of the goat that has given rise to the claim made by some American doctors that goat's milk is of value in the treatment of cancer. Dr. Kerr Bell, in a leaflet written by him and issued by the Surrey Goat Club, states that " goat's milk contains more fats, sugar and salts. The fat globules are finely divided and held in suspension, not separating and leaving a watery fluid below, but even after the cream has been removed the remaining milk tastes creamy. . . . This minuteness of the fat globules renders the milk very digestible, and the greater quantity of sugar and salts are also factors in its favour, while the casein resulting is flocculent as opposed to the larger and more indigestible flakes formed by cow's milk." I could quote much more of intense interest from this leaflet, but must not do so here, but I think the above gives a very clear idea of why goat's milk is so valuable. A further point of great importance is that there is no necessity to boil goat's milk—a course adopted, I presume, with cow's milk with the intention of killing tubercle bacilli, a process that is fatal to the nutritive quality of any milk.

Then again, the goat is such a handy little animal, and can be handled and accommodated by many who could not contemplate keeping even a Kerry cow, to say nothing of the great difference in the preliminary outlay on both animals. The amount of garden waste that she will consult and turn into milk makes one almost believe that the goat was a provision of nature specially invented for the help of the market gardener or smallholder. During this extraordinary weedy summer my own goats have consumed, with great profit to all concerned, a daily average of six bushels of weeds.

I believe there is no way of ascertaining the goat population of this country, as the Ministry of Agriculture has not yet collected any figures as they have with other livestock, but this we can say with no hesitation—the goat population ought to be at least ten times what it is. I have before me an interesting table of areas of commons in each county, and if all of these commons carried even one goat per acre we shall have reason to congratulate ourselves. Middlesex, as might be expected, is well at the bottom of the list with 4,316 acres, and is followed by Bedfordshire with 4,630. Surrey, one learns with surprise, is not at the head of the list, having 42,936 as against Cumberland's 187,718 acres. If each county goat club set out to ascertain the number of goats and where they fell short of these figures per acre to endeavour to make them up, what a splendid thing it would be for the country in general. From this I do not mean to imply for one moment that those with no common ground at their disposal are debarred from keeping a goat—far from it. Stall feeding is a wonderfully successful system, and I hope to deal with it in a later article.

In my next article I shall discuss the subject of the special value of goat's milk in rearing small livestock.

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Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

THINNING THE FRUIT, or shall I use the expression, " Culling " out the weaklings.

At this time of the year, when days are long and sunny, many visitors look us up, and friends want to be shown over the orchards and poultry-runs, we have good opportunities of making careful observations and some mental notes.

Amongst the varying things that may strike us will be the effects of our spraying (or non-spraying) results of pruning, great variations in growth and vigour of trees, and we may wonder as we notice the great difference between the crops which certain trees are carrying, whether it would be a good thing to thin out the fruit on some of the trees, or leave all to take their chance; so I think a few remarks on thinning might be in season.

Naturally, the amateur grower and the commercial man will look at the question from different points of view, for undoubtedly the thinned trees do give us larger and better fruit in exactly the same way that thinning the grapes gives us larger berries and heavier bunches by the time they are ripe. I might add, in passing, that with grapes I find that it is always best to take away at least two out of every three of the berries, and that those starting to grow grapes generally err by not being sufficiently free when using the scissors.

With apples and pears, besides the question as to whether it will "pay us" to thin out the fruit of these or similar trees, there are other points to be borne in mind. For instance, it is a great mistake to allow young trees to bear much fruit, and just as I prune severely in their early years (and sacrifice fruit buds) for the sake of getting well-established and good-shaped trees, so I likewise think it wise to remove the greater part of the fruit for the first year or two, especially any at the tips of the main branches.

We must always remember that it is the formation and ripening of the seeds, or pips, that entails a great strain on the young trees, and big crops immensely exhaust the old ones, so that the removal of some is naturally beneficial particularly any mis-shapen fruit.

Also, reducing the numbers of a cluster will assuredly help here, and allow the remaining apple (or two) to develop to a larger size. A small apple will contain as many pips as a large one, so doing away with these and defective fruit reduces the amount of fertility taken from the soil. Extra vigorous young trees could be allowed to carry a larger crop, as that would of itself act as a check to excessive wood growth, and keep it steady.

Now, going back to the point of whether it will "pay us" to thin, we unfortunately have not any statistics that I know of to show this, but several experiments have been carried out to prove the great improvement on the crops by judicious thinning, not only of numbers, but also of the distances left between the fruit on a tree.

Some of my readers may be familiar with the arrangement of allowing only one bunch of grapes to every foot run of rod, to get good results. With the above-mentioned experiments of trying the thinning of fruit to averages of four, seven and nine inches apart, it was found that the one with seven inch distances gave the best results, i.e., produced a more marketable and uniform size, and with better colour.

We know for a paying concern one with poultry, fruit, in fact with everything, must study quality, and not merely quantity, for a good article can always be sold, whereas the glut is nearly every time found to be with the second and third rate production.

The man growing a little fruit will thin several times to get choice stuff, and it is interesting trying to obtain it; but if growing commercially, we shall probably find that one operation is sufficient, and that best done when the fruit is about one inch in diameter.

All having fruit trees, or living near orchards, are accustomed to seeing large numbers of fallen fruit scattered around, and starting when the fruit is quite small, and continuing almost up to the time the crop reaches maturity. Thus Nature does a deal of thinning for us, and she usually sheds the defective ones, not always noticeable to our eyes. I am not referring to the heavy falls of fruit after a storm, which are, unfortunately, too severe thinnings of the crops.

So, speaking generally, I think that commercially it is best to confine our thinning to the early years of trees, when the reduction of fruit at that period of development is undoubtedly very beneficial, and in later years be guided by the amount of fruit a tree is carrying, bearing in mind we want quality as well as quantity to pay.

It is quite possible that very heavy crops on older trees are partly the cause of lean and fat years, or the biennial bearing we often read about, whereas thinning might help here to rectify a trouble.

In closing this article let me add that it is wise to support branches bearing heavy crops of good-sized fruit, and to realise the importance, when pruning, of shortening leaders to such a length that we get main branches, which will be sturdy and upright and able to properly carry reasonable crops.

INTER-CLUB CONTEST OF THE MIDDLESEX POULTRY CLUB BRANCH.

A team contest is being organised by the Middlesex Poultry Club Branch for its affiliated clubs in the county of Middlesex.

The competition will be a knock-out contest to be decided in the number of rounds according to the number of teams entered.

A team shall consist of eight utility birds (hens or pullets), six distinct varieties to be as follows:—W.W., L.S., R.I.R., W. Leghorn, B. Leghorn, and Ancona, and one A.O.V. Heavy and one A.O.V. Light, to give the less popular varieties a chance, all to show high-breed characteristics.

The team shall be entered by the different societies and associations at a fee of one guinea per team to cover expenses of postage, trophy, prizes and organisation.

RULES FOR COMPETITION.

(1) Entries must be sent in not later than October 20th, 1924. The first round to take place in November, the second in December, the third in January, and so on till the final. The fee of one guinea must accompany each entry.

(2) One club may enter only one team, but it is not necessary that the same birds should compete in each round. Different birds may be selected by the individual clubs.

(3) All birds must be the property of members of the said societies or associations. Any infringement of this rule will render the club to be suspended from any county contest for three years.

(4) The complete draw will take place on October 28th, and the County Secretary will notify the competing Club Secretaries without delay.

(5) Not less than five members of the County Committee must be present when the draw takes place, and the names of those present shall be recorded and sent out to each Club Secretary with the notice of the draw. Representatives of any competing society may be present at the draw.

(6) All contests must take place on or before the last day of each month, and results sent to the County Secretary by both the winning and losing secretaries within three days of each contest.

(7) Any club not keeping to the specified dates in these rules will be counted as losing teams.

(8) The home teams shall supply the pens, as the away teams will have the carriage on their birds to pay. It shall be considered as the advantage to the home team to select its own most suitable date, but

the winner for the final shall be decided by the County Committee in conjunction with the societies concerned.

(9) JUDGES. The judge for each contest will be drawn for at the drawing for the first round, but the committee will select the judges for the final.

(10) PRIZES:—

1. Trophy for winning team to be won outright.
2. Silver memento for runner-up, to be won outright.
3. Each member owning bird in winning team to receive a silver special.
4. Each member owning bird in runner-up team to receive bronze medal.
5. Certificate for each team in the semi-final and final.
6. Certificate for the winning team in each round.

KEIGHLEY AND DISTRICT BRANCH OF THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

A meeting of the above was held in the Temperance Hall, Keighley, on July 23rd, at 7.45 p.m. Mr. Frank Snowden presided over a moderate attendance. Mrs. Wilson, having given a statement of the financial position of the branch, proposed that £50 be invested in the Yorkshire Federation International Laying Test Company. Mr. J. H. Reynolds seconded the motion, which was carried unanimously.

It is understood that the Yorkshire Federation of Poultry Societies will hold a sale, shortly, of existing plant and stock taken over by them when purchasing the farm near Otley, for the Laying Test site. It was, therefore, arranged that the members pay a visit of inspection on that date.

Mrs. Vowles, The Court, Benningborough, York, having invited the members of this branch to visit her Commercial Egg Farm, which carries 1,000 head of stock, August 30th was decided upon as a most suitable date upon which the visit should take place. Members wishing to join the party should give notice, at least three days previously, to the Secretary, Mrs. Wilson, Minorca Farm, Denholme, Bradford.

It was unanimously resolved that this Branch of the S.P.B.A. become affiliated to the National Poultry Council, which gives the right to appoint a delegate or delegates to the National Poultry Parliament, also to make nominations for officials of the National Poultry Council.

The meeting closed at 10 p.m. on account of the room having to be vacated at that time.

(Signed) A. WILSON, Hon. Sec.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

J. S. S. (Backford). The sample of bone meal you send is a very good one, and you could use it in the laying mash up to 3 per cent., but it will not take the place of fish meal.

H. R. (Malling). I can only advise you, as I have so often advised others with these early-hatched pullets which start laying now. Whatever you do do not attempt to check laying by reducing the feeding. On the contrary, feed them well; but do not stimulate them. It will be advisable not to give any maize, but to replace it with Sussex ground oats, and give oats and wheat as the grain feed. As I have explained previously, this early production is, as a rule, not due to the feeding being too stimulating, although in some cases that may be so. Early production is largely a matter of inheritance, and the only thing you can do with these pullets is to feed them well, so that they have enough sustenance for both production and development. I expect the leg weakness from which the chicks suffered was due to the brooder. The feeding would not cause it unless it was over-stimulating. We are quite certain that it was not caused by lack of the mineral salts, and the formula contains both the "B" and "A" vitamins in a sufficiency. We hope to deal with the subject of leg-weakness more fully later on when we get a little more evidence, but there is no doubt that in 90 per cent. of the cases it is a brooder trouble.

H. W. (West Sussex). The sample of maize germ meal is not a satisfactory one. I would advise you now to use maize meal in its place. The maize meal itself is a fairly good sample. The ground oats, too, are good, and wonderfully good value for the money. I prefer the sample at 12s. to that of 12s. 6d. In the formula you give you are using an excess of maize germ. It would be better to reduce it to one part. The mash which you are giving the January-hatched pullets would be better if you added another two parts middlings, and it is time they had some animal food. No, the farmer near you who has given you that formula is wrong. It is not the latest thing; it is as old as the hills. I have heard the stuff you mention recommended as useful for colds, but I have never used it myself, and cannot tell you the quantity.

E. G. (West Croydon). The Australorp would not be a very suitable breed for your conditions, you would be much wiser to try the Black Leghorn. The house would accommodate 16 pullets; such a small outside run would be useless unless covered; it would soon become foul. The elderberries would not poison the birds nor harm them in any way. (2) The ground oats are a good sample, and if you buy in such small quantities you cannot expect to get them more cheaply. The meat meal is not a good sample, and I would not advise you to use it. The mash you are feeding is too rich in carbohydrates. Reduce the biscuit meal by one part and increase the middlings by two, this will give you better results and be much cheaper. The best book for your purpose would be "British Poultry," published by "Feathered World," this describes all British breeds of poultry, and is well illustrated. You can obtain it from the publishers, 9, Arundel Street, Strand, W.C., price 2s. 6d. post free.

Breeder (Worcester). Such a close mating would be disastrous with such stock as yours. There is no alternative but to get another male. When your stock is mediocre close mating is fatal; you should always have a specific object in view when you think of mating closely related birds. (2) It is a bad case of vent gleet, too far advanced to render treatment advisable; much better kill the bird and bury her. Yes, I think you are overdoing the fish meal. The state of the excreta and the black tipped combs indicate that, you could safely reduce it by one half without there being any danger of a drop in egg production.

Sex Linked (S. Wales). Despite her big record the cockerels from this cross-bred hen would have no value as breeders. Your best plan would be to fatten them at once. (2) Black Leghorn males mated to Light Sussex hens would not give you chicks, the sex of which you could detect at hatching. Yes, you could mate with Light Sussex or Rhode Island Reds, and the pullet chicks will be red or buff and the cockerels silver. (3) There was nothing in your method of working the incubator to explain the poor hatching results, and, as you say the thermometer was tested, I can only conclude that the eggs were at fault; this is further indicated by the number of germs which perished in the early stages. Why this should be it is impossible to say, unless you send further particulars. The feeding may have been at fault, it does not follow that it was the male bird.

S. K. (Blackburn). You are feeding quite correctly, and there is nothing more you can do at present. These late-hatched pullets are always slower to develop than the earlier hatched. If you want them to lay before Christmas, your best plan will be to give them an extra feed by lamp-light later on; the addition of cod liver oil to the mash would not help them in the least. A better plan would be to give them a mash mixed with skim milk once a day. No spice on earth will prevent your birds falling into a moult. Spices are arritants, and not tonics, and tonics don't stop moulting or help it much, unless the birds are out of condition from any cause before they moult. Bran contains very little lime, alfalfa is very rich in it. These are not Sussex ground oats, but would answer the same purpose; they are good value for the money.

C. C. (Taunton). The chicks are doing badly because you are using inferior foods. This refers particularly to the bran, blues, and ground oats. Also there is too much bulk. Unless you get better samples than this it is hopeless. If you do so, reduce the bran by one half, and double the quantity of ground oats, in place of the meat meal use meat and bone meal. (2) There are several good laying strains of Brown Leghorns, but they are not on the average such good layers as the Black, neither is the egg so large; they are not a delicate breed. (3) I cannot be sure, but my impression is that the hot-water incubators give better results in the early part of the season, and the hot-air do best later on. There is no known preventive of B.W.D. The agglutination test seems at present the only possible solution, but that is not altogether satisfactory.

Ranger (Slough). The best time to kill the hen would be just before she drops into a moult, when she shows symptoms of dropping feathers. If you wait until she has finished you will get a fatter and better hen; but, of course, one usually does not want to keep them through the moult. (2) I cannot tell you how long the red mite will live in a house after it has been vacated by fowls. They must find a host. I really do not know enough of their history to tell you how they come. Mostly in the manner in which all unpleasant insects come, I suppose. You can do nothing but thoroughly spray out the house with carbolic, and it is a wise plan to freely creosote the perch sockets or the ends of the perches frequently. No, carbolic powder is of no good. I find nothing to equal paraffin or creosote. They do not like the light, and therefore you will find them less in houses which are bright and well lighted than in others.

POST-MORTEMS.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

(Miss L. T.). The post-mortem on the hen showed the cause to be generalised tuberculosis, all the organs of the body being studded with tubercules. Tuberculosis, as you know, is an infectious disease, and we should advise a careful inspection of this hen's associates, and the destruction of any that show the slightest signs of illness. The leaflet on this disease and its methods of control can be obtained free of cost from the Ministry of Agriculture, and may be of service to you in dealing with the trouble. Send for leaflet No. 78, 10, Whitehall Place, S.W.1.

(Miss M. E.). The R.I.R. pullet was the subject of well-marked rickets, and its poor development showed lack of stamina and constitution. We should most decidedly advise against breeding from any of this stock, as this constitutional weakness is liable to be perpetuated in the offspring.

(F. J. R.). The post-mortem examination of the Runner Duck showed the cause to be peracute attack of septicaemia-hemorrhagica, a disease that is unavoidable, and which may carry off one or many. On general principles we should advise a thorough clean up and disinfection of the duck houses, runs, etc., and the burning, not burying, of any cadavers. It would be as well, in the hopes of combating the infection, to give each bird five grains of the hyposulphite of soda, either in the drinking water or the mash daily for a couple of weeks.

(H. M.) The pullet was the victim of fowl cholera, and succumbed to the primary shock, as is often the case, without developing the scour associated with the mallady. I can readily understand your taking it for poison, as the duodenum was intensely inflamed, like one would expect from an irritant poison. The correction comes by examination of the membranes of the mouth, gullet proventriculus and gizzard which participate in the discolouration when poisoned, but in this case were quite unaffected.

(D. G.). The post-mortem on the White Leghorn pullet showed the cause to be peritonitis, due to a ruptured uterus. This is a common cause of death in forced productivity, excessive stimulation of the egg-producing apparatus causing breaking strain.

(R. H. G. T.). The chick proved to be a victim of what I have named the "hayband disease." A twisted mass of fibres, grass stems, and apparently hair or strands of wood resembling the old hay bands, had blocked the glandular stomach, as well as the gizzard, which could not contract upon and dispose of it. Having in mind your fear of coccidiosis, I was particular to examine the caeca, where I found no oöcysts of that disease, but did find in the duodenum a great many worms, and under the microscope many of their cysts embedded in the mucus membrane. The grass should be fed off by sheep or pigs, grazed, or otherwise shortened. For the worms you might give once a fortnight a quarter of a grain each of kamala and jalap in a very small mash after a fast of 20 hours.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

CO-OPERATIVE POULTRY PRODUCTS, LTD.

The first Ordinary General Meeting of the members of the above Society was held in the Memorial Hall, Farringdon Street, London, recently.

The chair was taken by Mr. P. Hedworth Foulkes, in the absence of Mr. S. G. Hanson, owing to illness.

In his opening remarks, Mr. Foulkes referred to the work which had been accomplished by the Provisional Committee, and mentioned that the two big tasks with which the committee had been faced were now satisfactorily settled, namely, the formation of the company, and the finding of a suitable site for the work in view.

In regard to the former, he pointed out that the Provisional Committee had been given power to proceed with the establishment of a Limited Company or a Co-operative Society. It had been decided that it was desirable, in the interests of the project, that a Co-operative Society should be formed.

With reference to the finding of a suitable site, they had purchased property at Virginia Water, which combined the chief essentials necessary, namely, it is within half-a-mile of the station, and one mile from the main West of England London Road, along which there is any amount of traffic for the purpose of supply and despatch of the finished product. Railway facilities are as good as one could hope for a general centre. The price paid for the property not only allowed for development, but, in the opinion of the committee, would not handicap the proper initiation of the scheme. Within one week of the completion of the purchase, it could have been sold at a profit of £1,000 more than the purchase price.

The Ministry of Agriculture had been approached in regard to the provision of capital, and there were grounds for believing that, under the Credit Facilities available, a loan, probably equal to the share capital, taken up by members, might be forthcoming.

The position to date regarding membership was that 800 individuals or firms had written promising financial support, and the majority of these had already redeemed their promises. Additional applications for membership were also coming in.

Members would be anxious to know when the station would be ready to receive birds. It was felt it would be a great mistake to make a start before they were ready. They were studying methods practised abroad with a view to their adaptation over here. That more particularly applied to equipment.

It was most desirable to impress on all those members who will make use of the station's facilities that they will loyally support it in every way, and will not regard it as a dumping ground for inferior stuff. They had to make a reputation for a really first-class article.

The Chairman paid the tribute of the Committee to the work Mr. Scholes had done. He had given day and night services for months without a fee, and, in addition, had provided the necessary expenditure out of his own pocket. The Committee desired to place on record their feeling of gratitude to him.

Mr. S. G. Hanson was unanimously elected President of the Society. Capt. Hunt proposed Mr. Hedworth Foulkes as the Society's Chairman. The nomination was carried unanimously, Mr. Foulkes suitably responding.

On the proposal of Mr. Stanley C. Tompkins, the Provisional Committee was unanimously re-elected, with the addition of Mr. S. C. Tompkins, Capt. G. P. Lawrence, and Mr. J. Meekings.

The Chairman made an appeal for more members, stating that, as a National Centre, other things besides surplus birds may be dealt with, and there was no limit to the possibilities of the future with a membership extending from the Orkneys to Cornwall and Kent, as well as Scotland, Wales and Ireland, as the membership of the Co-operative Poultry Products did at the present time.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V, M.S.A., A.P.S.

BUMBLE FOOT.

This term embraces a variety of foot troubles in which there is more or less swelling and lameness.

The causes vary from a lodgment of a thorn or other foreign body to deep-seated constitutional or systemic disease. From infection by ordinary dirt organisms to deep-seated chronic inflammation of the synovial sacs which should supply lubricating fluid to the tendons and joints, but instead produce morbid material varying from the consistence of butter to that of dry old cheese rind. It may be accidental and from external causes, or specific as from tuberculosis, or of gouty and rheumatic origin. If, then, a foot lameness with swelling may arise from such very different causes, it is hardly likely that any single line of treatment should be suitable for all cases.

In all but the most recent poultry books the subject of bumble foot is briefly dismissed after stating that high perches and heavy bodies and bruising of the soles when alighting were the causes. No doubt some few lame feet are thus caused, but quite the majority indicate others, when the opportunity of post-mortem examination is afforded. It no doubt does more often happen to heavy birds than to the light breeds. The adult cock, say, of the Light Sussex, or R.I.R., will suffer a puncture from a thorn or nail that the light tread of the Leghorn would not drive home. Birds will peck a wound and eat their own flesh, or that of others, but they have not the sense to peck out a foreign body in the foot. Such bodies embedded in the foot escape the attention of some poultrymen, for we had two legs sent on the same day from different members with portions of wire nails pressed into and almost concealed by the skin of the pad.

Among the causes of bumble foot may be mentioned cinder laid yards or runs. Cinders when first spread are as germ-free perhaps as any sort of scratching floor, but their value in this respect is over-estimated, and they are left unchanged too long. They become saturated with excreta, in which the dirt organisms flourish and await a slight abrasion such as continually walking on such rough material provides. The backyarder is specially open to this trouble, for he must be an enthusiastic hygienist to keep his yard clean and yet not have a hard surface. Concrete produces many cases of bumble foot.

A complaint has been made by a correspondent in India that birds imported from England arrive lame with bumble foot, and I wonder if it is from a cause I have seen on ships in former days when serving as surgeon. In those times we shipped live sheep and poultry where convenient, and, of course, had but small space for them, so that, despite much urging on my part to keep them clean, they never were, except for a few minutes after receiving attention. With these birds it was the rule rather than the exception for them to develop bumble foot on the hard and dirty iron decks. We were not able to maintain their body weight on the best of food, and each one killed was skinnier than the last when it reached the table.

Diagnosis and Treatment.—The examination should not be confined to the foot unless a foreign body has been located, and is undoubtedly the cause of the trouble. It can be seen and extracted. The operator need not fear to enlarge the wound, if he fails with a pair of finely-pointed manicure forceps to remove the offending article. It is usually advisable to afford free drainage, but it is not at all usual to get a flow of matter. Whether the cause is accidental or other, there is always the tendency to condensation of rather than to liquefaction and discharge. So a bold opening favours the removal of pus or other inflammatory products which often have to be dug out with such an implement as a bone salt spoon, and the cavity dressed with iodine or other suitable antiseptic to prevent refilling. The bird so operated upon can have a bandage applied for protection against the intrusion of dirt, and be confined in a hutch or coop of small size and restricting his activities.

If the cause is not so obvious, the general condition of the fowl should be ascertained, weight, colour of comb, and mouth membranes, and particular observation of the hock joints, for these will generally be in sympathy with the foot if gout, rheumatism, or tuberculosis are at the bottom of the trouble. The examiner will note any staining of the vent feathers as pointing to tuberculosis affecting the liver. In advanced cases of gout this region also affords evidence by the presence of dried grey material which consists of evaporated urine coming away in excess.

If the owner of a lame fowl happens to be a devotee of the microscope he will have additional means of distinguishing between the tubercular and the gouty excretions.

Bumble foot in the majority of cases should be amenable to treatment.

When accidental, as already shown, surgical measures will succeed if sufficiently bold and persistently employed. If of tubercular origin there will generally be such body wasting, or alvine discharges in evidence, that slaughter and burning of the carcase is the only safe course. If due to rheumatism or that condition known as rheumatic gout, the carcase is generally in pretty good flesh, perhaps more often too fat than too thin, and treatment medicinally is hopeful. The value of periodical fasting is not yet realised by any but a few poultry-keepers who happen to be physiologists. They have concentrated on production, excessive production, and like the breeders of other livestock are willing to take chances. Perhaps one should say here that a great many cases of rheumatic gout reach us for post-mortem examination that we know could have been remedied by a fast of thirty hours and daily dosing with about fifteen grains of sulphate of sodium (glaubers salts). Time is not lost but gained when a fatting bullock or crop-sick hog or gouty fowl is fasted. We have become too refined in our methods and content to sneer at the bleeding and purging prescribed by former generations, and the fasting recommended by priests who were nevertheless easily persuaded to give a "dispensation" to the gluttonous.

HATFIELD SHOW.

There was a good entry in the Poultry Section of the Herts County Agricultural Show, held at Hatfield, on July 24th.

As usual, the strongest classes were: Light Sussex, Rhode Island Reds, White Leghorns, and White Wyandottes, but a big class of Barnevelders entered by breeders within the county as well as from outside showed that this breed is becoming more and more popular.

The standard of this class appeared to be more fixed this year than last, although a very wide variation is still apparent, both in size and in marking.

It was a pity that the special classes for members of Women's Institutes and for Backyarders were not better supported, and it would perhaps have been wiser if these had been included in the Utility instead of in the Exhibition section.

It was good to note that a number of the best birds were shown by general farmers and not only by poultrymen, which leads to a hope that the proverbial "Barndoor" may some day give place to a better type of farm hen.

The eggs shown were good, and the quality of table birds was high, although competition in this class was very poor.

One of the most striking features of the show was the poultry exhibit put up by the Herts Institute of Agriculture, Oaklands, St. Albans.

This included an exact model of the poultry farm at the Institute—the houses set out in an expanse of real grass with real little trees planted in replica of the original. This, together with the numerous drawings and charts displayed, all being the handiwork of the newly-appointed poultry instructor, Mr. Fergusson, proves him to be an artist as well as an expert.

In addition, there were many instructive exhibits of a good and a bad layer, of graded and ungraded eggs, of an egg in the process of incubation, etc.

Judging from the crowds round the exhibits there is no lack of interest in the poultry industry in Herts.

YORKSHIRE LAYING TRIALS.

Tenth Month.

LARGE BREEDERS' SECTIONS.

The numbers are for eggs and points respectively.

White Leghorns.—1, R. Rodwell, 658, 3,142; 2, Fred Irvin, 660, 3,042; 3, Maj. A. W. Disney-Roebuck, 618, 2,677; 4, E. Priestley, 536, 2,328.

Black Leghorns.—1, Mrs. Paulet, 520, 2,509; 2, Lord Dudley Gordon, 516, 1,950; 3, Edward Wakkins, 463, 1,926; 4, Horace Smith, 495, 1,881.

A.O.V. Light.—1, C. Killingbeck, 588, 2,500; 2, Ryhall Mill P.F., 567, 2,103; 3, A. Gawthropp, 342, 1,469.

White Wyandottes.—1, Frank Snowden, 856, 3,972; 2, R. Rodwell, 717, 3,003; 3, S. & T. Greenall, 671, 2,844; 4, W. Crabtree, 696, 2,761.

Rhode Island Reds.—1, Miss D. E. Kitchen, 723, 2,959; 2, Alderson Smith, 653, 2,556; 3, A. Gawthropp, 615, 2,393; 4, Harry Petty, 575, 2,179.

Sussex.—1, Mrs. F. Cockshott, 544, 2,294; 2, R. S. Williams, 518, 2,175; 3, H. D. Bailey, 513, 2,004; 4, F. R. Welch, 406, 1,539.

Australorps.—1, H. R. Parsons, 453, 1,810; 2, Hon. E. Chaloner, 393, 1,603; 3, Lady W. Cohen, 376, 1,471; 4, Australorps Farms, Ltd., 366, 1,441.

A.O.V. Heavy.—1, H. Thomas, 619, 2,845; 2, R. E. Gifford, M.A., 555, 2,490; 3, H. Holmes, 517, 2,304; 4, W. Horsley, 511, 1,961.

SMALL BREEDERS.

White Wyandottes.—1, Chas. Lambert, 228, 1,130; 2, F. Clark, 185, 901; 3, W. Winkley, 160, 736; 4, E. S. Sturdy, 186, 668.

A.O.V. Light.—1, W. G. Bullen, 107, 464; 2, J. J. Booth, 102, 445; 3, G. T. Marsden, 78, 433.

White Leghorns.—1, J. H. Gundry, 217, 998; 2, F. C. Tomlinson, 147, 752; 3, Leonard Ellis, 141, 645; 4, Miss A. Paul, 125, 615.

A.O.V. Sitting.—1, Mrs. W. Bamber, 169, 784; 2, Jas. Fawcett, 126, 600; 3, W. C. Crossland, 122, 543.

Gift Section.—1, F. Irvin, 96, 462; 2, H. D. Bailey, 78, 403; 3, H. Taylor, 77, 366.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Correspondence.

THE POULTRY CLUB ELECTION, 1924-1925.

To the Editor of "Eggs."

Dear Sir,—The critics sometimes charge members of poultry societies with apathy or indifference, especially at Election Time. Will members of the Poultry Club show that the accusation is untrue? The nomination papers will be sent out on August 1st, and the Council earnestly desires every member to take his or her share in the management of the premier poultry organisation of the world. As I am already receiving enquiries, may I ask permission to remind members that they can nominate (and later vote for) THREE PERSONS ONLY: (1) The President, who can reside anywhere, but must have attended twelve meetings of the Council. (2) The Vice-President for their own section, who must reside in that section. (3) Hon. Secretary and Treasurer.

I send for editorial information a copy of the nomination paper and the supplementary list of members elected since the Year Book was printed.

Yours truly,
WILIAM RICE,
Hon. Secretary and Treasurer.

FAIR TRADE RISKS.

To the Editor of "Eggs."

Dear Sir,—I was interested in Mr. Saunders' letter *re* Fair Trade Risks of July 9th.

I was a disabled man in 1921, and decided to start poultry-farming. I had a good training, and when I started on my own I bought 100 pedigree birds, for which I paid £1 each from a very well-known breeder in the Midlands.

Within a week I found one bird dead—sent it away, and it was diagnosed diphtheria.

Unfortunately I had not put these birds into quarantine, but had mixed them with 400 fine, healthy birds I had from another man. Also, I had never come across the disease during my short training, and did not realise the seriousness of the affair. Another bird died within ten days, and soon I had the whole of my stock infected. It went through them like wild-fire, and although I worked hard to cure them, at the end it meant killing them all off. The whole of my first year was a failure. I wrote to the man, and told him the number of his birds that had died with diphtheria. At first he tried to make out that the birds had caught it on the railway; then he became abusive and insolent, and refused to refund any money. I was disheartened, and, still suffering from neurasthenia, I let the matter slide, but I often wish I had taken proceedings against him. This man must have known the birds were diseased, but he had been told I was a beginner, and probably took advantage of that fact. This bad start knocked me back for two years. I write this in the hope that other beginners may profit by my experience.

Yours truly,
R. CLARKE THOMAS.

PEDIGREE AND LINE-BREEDING.

To the Editor of "Eggs."

Dear Sir,—In answer to Mr. Poole's letter, may I ask him if he has any definite data relating to his statement that those gaining high positions in the laying tests are the results of years of line-breeding? If so, it would interest readers, I feel sure. I still maintain that continuous line-breeding is only in the hands of the few, and not for the general run of poultry-farmers. I have exhibited a good deal in years gone by, and this has meant line-breeding, so I do not speak without some knowledge.

I think if Mr. Poole really got among the fanciers he would find that, generally speaking, fresh blood, although of the same strain, is necessary.

As regards specific characters, I entirely agree with the Editor's footnote.

Yours faithfully,
E. M. MARSHALL.

EGGS BY WEIGHT.

To the Editor of "Eggs."

Dear Mr. Newman,—*Re* your note on the above subject in "Eggs" of July 2nd. Why not? I should like to see the subject dealt with through the columns of "Eggs." Also I should like to see it become law to compel the retailer to sell all his eggs by weight. I have advocated this to many people I have met, and for several years past now have sold a portion of my eggs by weight, viz.: Pullets' eggs. I ought not, perhaps, to admit that I keep fowls that lay small eggs; still it is a fact, and I daresay there are others also. For instance, my early hatched pullets are just coming into production, and naturally they lay a percentage of small eggs. I have always sold these eggs by weight, and generally find that the dairyman is quite willing to take them. I take the average saleable eggs at 2ozs., that is 1½lbs. of eggs to the doz. I weigh my pullets' eggs to this standard, and find that it takes invariably 15 eggs to make the 1½lbs. I do this every year till the eggs get to a saleable size. Now we will look at the other side of the question. I trap-nest as many of my breeders as possible, as much for size of egg as anything. I sent for your inspection a list of records for eight months of some R.I. Reds, 1922 hatched, which I am keeping another year for breeding. These birds have all laid eggs continually from 2¼ozs. to 2½ozs. I have, without selecting, put 10 eggs on the scale, and they have gone 1½lbs. Why should I not get that benefit of my extra labour in trying to improve the size of egg by selective breeding?

But this is the point I want to make clear. The dairymen take my big eggs and average-sized eggs by the dozen; my pullets' eggs by weight; but by selling them mixed he gets 27 eggs for his two dozen. I have taken eggs and put on the counter at 3s. 6d. per dozen, and 3s. 6d. per 1½lbs. of 15 eggs, and have stood and seen him sell a dozen at 4s. 6d. a dozen. I am speaking now of October and November. I should like to see the consumer get the fair play that the dairyman expects. Another little experience I had, this time at market. I am, as you know, in a small way, and have not risen to a Rolls Royce, still it is coming (*for the Dairyman*). I believe in grading all my eggs, also I can honestly say we have never sent a dirty egg to market. Well, the week following Christmas, 1922, I and another man graded and packed 50 dozen eggs for Alton Market. We each took 25 dozen; not a bad load by any means, considering it is nine miles from Headley. Well, we put the browns by themselves, also the whites, the pullets and small eggs also on the special table. The sale commenced with browns at 2s. 4½d., whites fetched 2s. 5d., and the pullets and small eggs fetched 2s. 7d. So much for grading. If there are any readers of "Eggs" who visit this market no doubt they can bear out my statement. Personally, I cannot see any way out of these difficulties but by co-operation, but that seems an impossible thing, for we do not seem to take advantage of a good thing when it is offered. I am living in a village which is surrounded with poultry farms, large and small. There are enough of us within an area of five miles or six, to take Bordon, Liphook, Bramshott, Grayshott, Hindhead, Beacon Hill, and to Farnham. We are served by six or seven corn merchants who have to travel far more miles to deliver our feeding stuffs than we should have to travel if we were to co-operate and get prepared to take advantage of the S.P.B.A. Food Scheme when it is in being. If this letter finds its way into our official organ, I should like to draw the attention of members of the S.P.B.A. in Headley and the district to the great advantage it would be to us to come together and form a branch of the S.P.B.A. for our mutual benefit. I am a working man, and have to go out to earn my living, and am trying to work up my small plant into a full-time business, hence I have not much spare time. But I believe there are gentlemen in the district who if they cared to take the initiative, and who are better educated and fit to control than I am, if a few could come together, we should soon have the making of a successful branch of the S.P.B.A. Now then, you members who are going to take the lead, I am willing to do my bit, and work under any man who is more capable than myself. If it pays other people to run round in motor cars to collect our orders and deliver our goods, surely it would pay us to do it for ourselves. I am asking Mr. Newman not to put this letter into the W.P.B., but to pick out the good from the bad.

Trusting this will meet the eyes of the members in the district named, and that it will be the means of bringing us together for our mutual benefit, and for the benefit of the S.P.B.A.

Yours truly,

"BEGINNER."

EGGS BY WEIGHT.

To the Editor of "Eggs."

Dear Mr. Newman,—You have asked for the opinions of readers on Eggs by Weight, and as I have devoted much thought to the subject, and have some practical experience of the difficulties attending any effort to apply such a system, I feel constrained to write to you.

Now I think that most people will be agreed that the producer and the consumer would both benefit if eggs were sold by weight.

It is true that anyone responsible for the feeding of a household may hold the opinion that as long as eggs are boiled, fried or poached, the unit is the only thing that matters—so many head to feed, so many eggs—and that the size of those eggs does not matter.

It is an erroneous point of view, but hard to eradicate from the mind of the average woman; but when one considers omelettes, scrambled eggs, and eggs for cakes or puddings, it is obvious that the weight of eggs used counts.

If eggs were sold by weight the producer of large eggs would benefit.

I will give you now some of my practical experience. Three years ago I made an effort. I carefully graded my eggs (duck), had some cards printed, giving place of production, and a guarantee that each egg weighed *over* 2¾ozs., and other cards guaranteeing weight *over* 2½ozs. (I may say that 75 per cent. of my eggs weighed over 2¾ozs.). I sent boxes to London guaranteeing 21lbs. to 10 dozen, and 19lbs. to 10 dozen. Though I persisted in this for some months, I found that my best eggs *never* fetched more than the second grade—at any rate the salesman never quoted any higher price for them. I also tried the local retailers, but though they were willing enough to take my graded eggs, and my suggestion that they were worth more money than ungraded eggs, was met by the reply, "The public won't give any more for them!"

That is the position at present. Very few of the public realise that as far as eggs are concerned (or, indeed, any food) it is the food value and weight per unit that is worth money, and retailers view the selling of eggs by weight with disfavour, because of the extra trouble involved. In dairies, which are the best customers, they seldom have scales.

However, it appears to me that there is a possible compromise, and that is the selling of eggs on the long hundred weight. If *all* poultry-keepers were to grade and guarantee weight per long hundred, the retailers would fall into line, and agree to sell by the dozen, but with the weight per long hundred stated, the price being worked out on the weight.

Visitors to Wembey will notice that the South African exhibit of eggs is so graded from 15lbs. up to 17lbs. per long hundred.

If this were done the public would gradually learn that the heavier eggs are worth buying, even if the price per dozen is higher, but it is no good one individual grading; we must all grade.

Danish, 18lbs., and Dutch, all brown, fetch the highest prices on the market. Why not "English 18lbs." and "English all brown?"

Yours faithfully, F. L. KELLY.

THE ECONOMIC BIRD.

To the Editor of "Eggs."

Dear Sir,—May I, as an amateur, add my experience to this most interesting and important subject?

I have been experimenting with a cross-bred for three seasons. Unfortunately, owing to the loss of all my early chicks last year, I was not able to raise sufficient to make up a pen and arrive at a flock average till this season.

I now have a pen of 44 cross-bred pullets, some hatched January 12th and some January 21st, 1924, and for convenience I have adopted the mean date and called them January 16th.

At four months I sold the cockerels (average weight 3 lbs.) for 1s. 10d. per lb., which I consider covers the cost of hatching and rearing to that date of themselves, and the pullets. On May 19th (roughly four months) I received my first pullet eggs—two. In that month I had 30 eggs. By June 15th (five months) I had had 211 eggs—flock average 4.795. By July 16th (six months) 911 eggs, making a flock average for the last month of 16. I commenced selling these eggs at 10d. per dozen, hens' eggs were then 1s. 2d. (June). As the size increased, so I was able to increase the price, and for the last three weeks I have been getting 1s. 2d.; hens' eggs 1s. 8d. From now to Xmas surely these birds should be as profitable as pullets can be?

I may mention their parents were nine months old pullets, mated to ten months old cockerels. The pen consisted of 36 pullets to five cockerels at first, but I soon found the fertility was better by taking two cockerels away. This, too, I find a more economical method of breeding than keeping birds through the moult on the dole.

By this means I was able to collect in seven or eight days enough eggs to keep my incubators supplied, whereas in previous years with two-year-old hens I had to purchase at least 50 per cent. of my hatching eggs in the early part of the season.

My experience with two-year-olds has not been satisfactory, especially with the heavy breeds which one requires early. I have tried Light Sussex, R.I. Reds and W.W., and I find with highly-fecund they lay too late into the autumn, and are not through the moult and in condition for early breeding. My experience teaches me that for the man who depends on eggs and table birds, keep as few two-year-old birds as possible, rear each year as many young birds as possible, hatch early and find the early maturing bird—which I think mine appear to be—I have not yet been able to determine the sex at hatching.

In conclusion, I may mention 30 pure bred pullets were run with these cross-breds to five months, including R.I. Red, Light Sussex, W.W. and W.L., and with the exception of one R.I.R. and two Light Sussex these have not yet come on to lay.

I state this to show that, so far as my knowledge of poultry is concerned, they have not been forced.

Yours faithfully,
S. G. REDDIE (Commander).

"EAT MORE EGGS CAMPAIGN."

To the Editor of "Eggs."

Dear Sir,—I wish to endorse Mr. A. H. Brain's suggestions about the "Eat more eggs campaign."

The public should be informed of the value of eggs, especially fresh eggs, as a food. May I suggest that if any organisations were to print short leaflets containing short and comprehensive information as to the value and different uses of fresh eggs, it would stimulate the demand for such. The leaflets could be printed in large numbers and distributed amongst the members of our poultry associations, who would, in their turn, pass on to the consumers or shops.

The leaflets, in my opinion, should deal with:—

(1) Medical opinions.
(2) Value as food.
(3) Value for money (comparing different foods).
(4) Cooking recipes.

The wording should be short, convincing, and preferably done by an advertising expert.

Yours faithfully,
H. SEQUIN.

THE MERCHANDISE MARKS BILL.

To the Editor of "Eggs."

Dear Mr. Newman,—I was hoping to see more than a passing reference to above in this week's "Eggs." As I understand it, the Bill has vanished into the air as far as the present Parliament is concerned.

Why? Because on two consecutive occasions when the Bill was up for discussion in Committee there was not a quorum present. Is it possible to find out how many members on this Committee had given definite pledges at the last election to actively support and do all in their power to make this Bill an Act? Then ask each of these members who were not present on either of the last two occasions when the Bill was up for discussion why they were not in their places to see the Bill through.

There might be some excuse for the first time, but certainly not for the second. The three chief opponents of the Bill, old hands at the game, were waiting just outside the room to see if a quorum was present before they entered. A sufficient number of members to form a quorum entered the room three minutes after the time appointed—but too late—the Bill was sent to the bottom of the list. Is our Society strong enough to take some action which will show members of Parliament that in future they cannot treat definite pledges given at an election in order to obtain votes as a "scrap of paper"?

Yours truly,

H. C. FEW.

ANSWERS TO QUERIES—Continued.

N. S. T. (Mardley Hill). Your formula would be better if the bran was reduced to one cwt., and the meat meal increased to half cwt. It would be better with these early laying pullets, too, if the mash hoppers were open all day.

J. F. (Drumchapel). Your birds could now be put on the following mash:—3 lbs. bran, 4 middlings, 1 maize meal, 1 Sussex ground oats, and 1 meat and bone meal or fish meal. At the beginning of September reduce the bran to 2 lbs. Your house would accommodate 35 birds if the perches were properly arranged. The outside grass run is too small to be of any great value, and I should limit their time on it to 1 or 2 hours a day. That would enable us to make the best use of it. It is a great pity that you have started with three breeds—R.I. Reds, Light Sussex and Wyandottes—in such a small space, and as you are a beginner it would have been much better had you confined yourself to one breed and thoroughly studied that. As the grain feed, give the birds kibbled maize from September onwards. This should be always fed in the litter so that they have plenty of exercise. The dry mash hopper must be open all day.

"Grateful" (Prestwick). The parts given in the issue of "Eggs," to which you refer, were by measure. Judging by results your method of rearing is economical, and as the prices you are paying are very favourable I cannot see that you can improve upon it. Of course, you are able to utilise the skim milk to such a great advantage. If you can, by this method of feeding, take your cockerels from the pen, weighing 4 lbs. each at 14 weeks old, then I should have no doubt as to its being an economical method of feeding. I am very pleased to have your appreciation of "Eggs," and to hear that from following the advice given there your hatches have been brought from 65 per cent. of eggs put in to over 90 per cent. during the last few seasons, "as a direct result of information contained in your valuable paper." I agree the secret is a fairly high temperature for the first few days, reducing at "pipping" time, and plenty of moisture.

POST MORTEMS—Continued.

Miss E. The post-mortem on the Australorp pullet showed the cause to be twisted intestines, a large loop of the latter being completely strangulated and very highly inflamed. This condition may safely be called accidental and unavoidable, although a possible cause is spasm of the intestines, due to indigestion.

J. A. S. The post-mortems on the two chickens showed the cause to be uraemic poisoning, the kidneys and their canals being blocked with urates, thus preventing them from performing their proper functions of getting rid of waste products. This may be due to an improperly balanced ration, the protein percentage being too high. We would suggest a less nitrogenous diet and the administration of ten grains of glauber salts, per head, given daily in the mash for a week.

The Hon. Mrs. S. All three of these chicks had fatty degeneration of the liver, the most backward one being especially well marked. In other cases of similar nature that we have been able to follow up we have found that an unbalanced ration has been at the root of the trouble, in others a constitutional lack of stamina of the individual birds that have not been able to profit by a ration that appeared to suit others. We have made a very careful search for parasites in the air passages and the digestive canal, but have not been able to find any.

C. C. M. The post-mortem examination of the R.I.R. pullets showed the cause to be pleura-pneumonia in both cases, but No. 138 was in a much further advanced stage of the disease. From the character of the lesions we should consider that the malady is contagious, and we should advise that every precaution, as regards isolation and disinfection be taken. To fortify the as yet unaffected birds we should advise a tonic, such as forty grains of the citrate of iron and quinine to the gallon of drinking water.

J. P. The post-mortem on the Exhibition W. 'Dotte hen showed the cause to be a generalised tuberculosis in a very advanced stage. The liver was one mass of disease, and this would account for the lameness which very often accompanies extensive liver trouble. You did all that could have been done for her, as, of course, the disease is incurable. As this disease is infectious every care should be taken in the way of disinfection and cleaning up to prevent other birds becoming infected. It would be advisable to isolate the hen's immediate associates and destroy any that appear to be going the same way; or, better still, to have them tested with tuberculin and the reactors killed at once. Leaflet No. 78, sent free on demand from the Ministry of Agriculture, 10, Whitehall Place, London, gives a useful summary of this disease and methods of control, etc.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Tattersby, R., " Greyrigg," Broughton, Preston.
O'Hara-Liversay, Brig.-Gen.. R., Rock Dene, Moore's Road, Dorking.
Bygrave, A. C., Grange Estate, St. Leonards, Ringwood, Hants.
Moreton Lamb and Co., Corn Merchants, New Road, Taunton, Somerset.
Riley, Mrs. C., Derby Fields, N. Warnborough, Hants.
Currie, Capt. D. Rivers, Hawksworth Rectory, Nottingham.
Hardinge, Mrs. Greenway, Ilminster, Somerset.
Harper, C. W., " Withygate," Brayford ,N. Devon.
McColl, Capt. A. G., Bennetts End Farm, Hemel Hempstead, Herts.
Clarke, S. J., 6, Parliament Street, Bath Road, Bristol.
Gilmour, Arthur, West Crosshill, East Kilbride, Lanarkshire.
Robinson, W. A., Queensbury Cottage, Richmond Green, Surrey.
Calthrop, S. (Junr), Normans, Wells, Norfolk.
Woods, W. G., The Woodlands, Authorpe, Nr. Louth, Lincs.
Hilton, H. Edward, Stockwood Vale, Keynsham, Nr. Bristol.
Mortimer, Geo., Hapton, Norwich.
Turner, Miss M. M., Westbrook, Godalming.
Macdonald, John, 114, Mid Street, Bathgate.
Adamson, Mrs. E. P. Exminster Vicarage, Nr. Exeter.
Little, C. T., The Laurels, Pilton, Shepton Mallet, Som.
Thomas, Capt. R. C., The Firs, Woolton Hill, Nr. Newbury, Berks.
Marshall, C. Norman, Seleng Cottage, Ewell, Surrey.
Corbett-Winter, Capt. F. F., Glan Rhiew, Berriew, Mont.
Johnson, J. W., Ash Mount, Bacup.

" ONE-MAN POULTRY FARMING."

The demand for Mr. Capper's book " One-Man Poultry Farming " has been most extraordinary, far exceeding the anticipations of the Council. Many letters have been received speaking most appreciatively of it.

Will readers please note that it can only be obtained from this office, and the price is 1s. 3d., post free.—(Editor.)

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 1st AUGUST, 1924.

GRAIN AND FEEDING STUFFS.—The past week has been one of rising prices for practically every kind of grain and feeding stuff. The sharp advances in North America have naturally influenced wheat prices over here, No. 1 Northern Manitoba averaging 14s. 5d. per cwt., as compared with 13s. 6d. last week and 11s. 2d. two months ago Buyers are operating very cautiously, however, at the high prices now ruling. Barley is in only moderate supply and firm demand, Karachi averaging 11s. 5d. per cwt., a rise of 5d. on the week, while oats meet an improved trade, No. 2 Canada Western averaging 10s. 2d. per cwt., as compared with 9s. 10d. last week and 9s. 3d. at the beginning of last month. Maize is a very firm market, although quotations are only a shade higher.

Milling offals continue their rapid advance, British bran and middlings now averaging £7 7s. and £9 15s. per ton, respectively, or 23s. and 20s. more than a month ago and 36s. and 25s., respectively, more than at this time last year. Meals are also advancing in sympathy with the raw material. Oil cakes are distinctly dearer, especially linseed cake, which averages £13 12s. 6d. per ton, an advance of nearly £1 on the week.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £6 12s.; Liverpool, £7 5s.; London, £7 2s. Broad Bran: Hull, £7 12s.; London, £8. Middlings:—Fine (Imported): London, £10; Coarse (British): Bristol, £10 10s.; Hull, £9 10s.; Liverpool, £9 5s.; London, £9 15s. Pollards (Imported): Bristol, £9; Hull, £7 10s.; Liverpool, £7 15s. Rice Bran: Bristol, £8 5s.; Liverpool, £8. MEAL.—Barley Meal: Bristol, £12 15s.; Hull, £12 2s.; London, £12 15s. Maize Meal: Bristol, £10 15s.; Hull, £9 16s.; Liverpool, £10 5s.; London, £10 15s. Maize Germ Meal: Bristol, £10 15s.; Hull, £10 10s.; London, £10. Maize Gluten Feed: Bristol, £11; London, £9 10s.

EGGS AND DEAD POULTRY.

The market for best quality eggs is very firm, and prices for English are maintained, while Irish and the majority of imported descriptions are the turn dearer. An improved demand for poultry is reported at London, but otherwise trade is only fair, and fowls and ducks generally sell at a slight reduction in price.

Week-end Prices.—Eggs (per 120): British: 18s., 17s.; Irish: 16s. 9d., 16s.; Danish: 18s. 9d., 16s. 9d.; Dutch: 19s. 6d., 16s. 9d.; Russian: 12s., 9s. 9d.; Belgian: 17s., 16s.; Italian: 17s., 15s.; Lithuanian: 15s., 10s. 9d.; Chinese: 13s., 12s. 6d.

Dead Poultry (per lb.): Fowls—Surrey: 2s. 4d., 1s. 10d.; Irish: 1s. 7d., 1s. 3d.; Others: 2s., 1s. 6d. Ducks, 1s. 3d., 11d. Geese, 1s., 9d.

EGGS.

Per Doz.—Ashford: First, 2s. 2d.; Second, 1s. 11d.; Birmingham: First, 1s. 10¼d.; Second, 1s. 9d. Bridgwater: First, 1s. 11d.; Second, 1s. 8d. Carlisle: First, 1s. 9d. Chelmsford: First, 2s. 1¾d.; Second, 1s. 11½d. Denbigh: First, 1s. 10d.; Second, 1s. 9d. Derby: First, 1s. 8d. Dorchester: First, 1s. 9½d. Exeter: First, 1s. 11d. Hereford: First, 1s. 7d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. King's Lynn: First, 1s. 9d.; Second, 1s. 8d. Lincoln: First, 1s. 8d. Llandilo: First, 1s. 8d.; Second, 1s. 7d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 1s. 10½d. Oswestry: First, 1s. 10d. Penzance: First, 1s. 8d.; Second, 1s. 7d. Salisbury: First, 1s. 11d.; Second, 1s. 10½d. Shrewsbury: First, 1s. 10d.; Second, 1s. 9d. Skipton: First, 1s. 4d. Truro: First, 1s. 7d.; Second, 1s. 6d. York: First, 1s. 11d.; Second, 1s. 10d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 9d. Derby: First, *5s. 9d.; Second, *3s. 3d. Exeter: First, 1s. 9d. Hereford: First, 1s. 6d. Ipswich: First, 1s. 10d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 9d.; Second, 1s. 7d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Shrewsbury: First, 1s. 3d.; Second, 1s. 2d. Truro: First, 1s. 5d. York: First, *5s. 9d.; Second, *5s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 1s. 3d. Derby: First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 4d.; Second, 1s. 3d. Llandilo: First, 1s. 9d.; Second, 1s. 7d. Newport (Mon.): First, 1s. 6d.

* Per Head.

TESTIMONIALS.

Oldfield, Eversley Park Road, Winchmore Hill.

Dear Sir,—I may say I have only just discovered that "Eggs" is just the book I have been looking for.

Yours truly,
(Signed) J. DAFFARN.

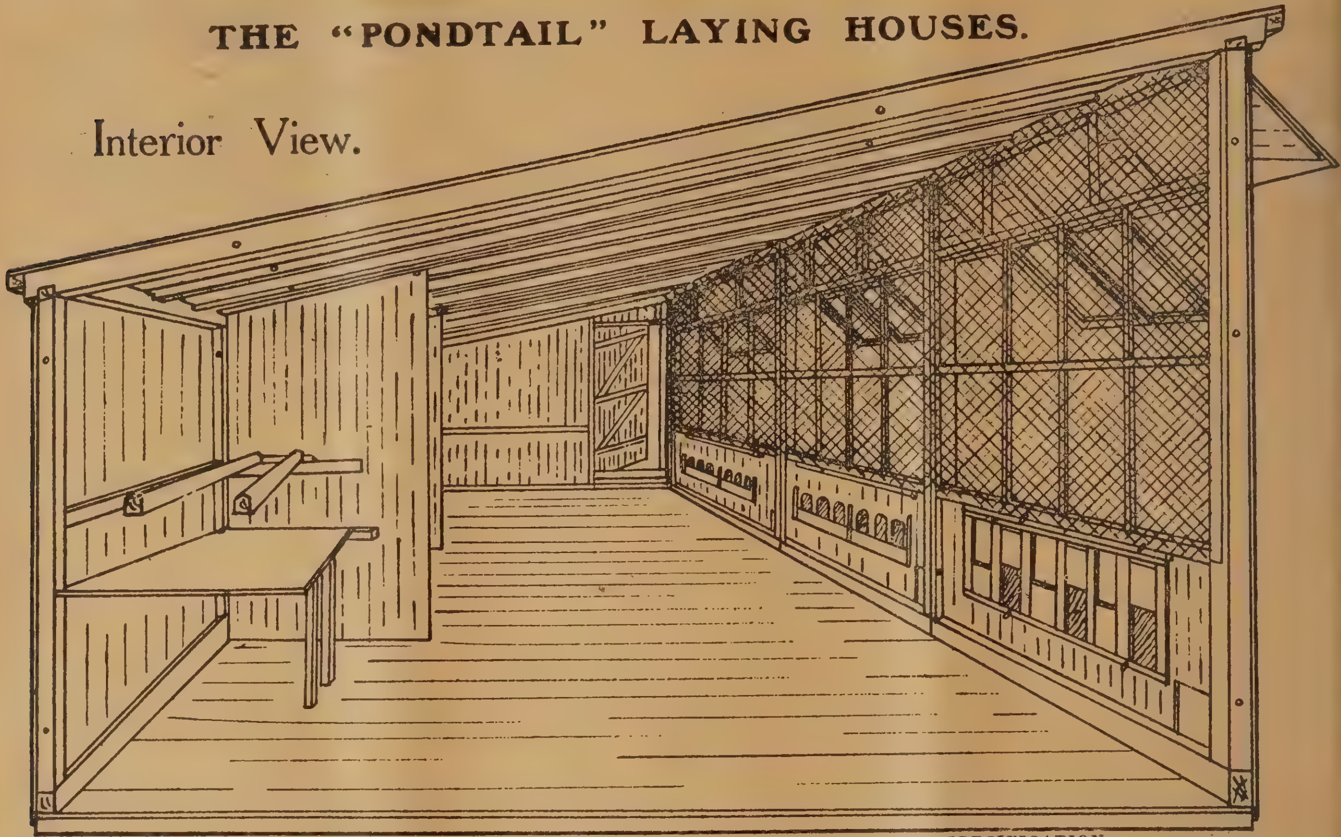
Crafnant, Chester Road, Neston, Cheshire.
9th April, 1924.

Dear Sir, As a beginner, I have only just heard of " Eggs," and take this opportunity of thanking you for the valuable information contained therein.

Yours truly,
(Signed) E. COPELAND.

THE "PONDTAIL" LAYING HOUSES.

Interior View.



These Laying Houses, which are built in sections, are light and well ventilated.

They are designed with a view to giving the birds ample floor space when kept in during bad weather.

The roof is so constructed that it cannot be lifted by the strongest of gales, and the fronts are guaranteed absolutely Draught and Weatherproof.

length	height	width	capacity-birds	PRICE	Floor extra
10-ft.	8-ft,	12-ft.	30-40	£18	£6
20-ft.	,,	,,	60-70	£32	£10
30-ft.	,,	,,	90-100	£46	£14
40-ft.	,,	,,	120-130	£60	£18
50-ft.	,,	,,	150-160	£74	£22
60-ft.	,,	,,	180-190	£88	£26

CARRIAGE PAID TO NEAREST RAILWAY STATION.

The Roof, Weather Board and Nest Boxes are covered with best quality Bitumen Felt. The whole House is bolted together in 10-ft. lengths.

SPECIFICATION.

ENDS, Back and Front.—¾-in. Tongued and Grooved Matching on 2-in. x 3-in. Framing (planed).

ROOF.—¾-in. Tongued and Grooved Matching carried by 2-in. x 4-in. Battens (planed).

FLOOR.—¾-in. Boards on 2-in. x 3-in. Joists.

PARTITIONS.—These are placed every 10-ft. and covered with ¾-in. Tongued and Grooved Matching on 2-in. x 3-in. Battens (planed); they are covered with Matching 6-ft. from back.

DROPPING BOARDS.—3-ft. wide, the whole length of the House, with two perches.

NEST BOXES.—One set of six Nests is provided every 10-ft., and can be fitted with Trap Nests if required, as shown in illustration, 15/- per set extra.

ATTENDANT'S DOOR.—One each end with lock and key. Glass 21-oz.

HEN EXITS.—One every 10-ft.

Quotation for Army Hut Type of Houses or Laying Houses of any pattern given on application. Estimates for delivery by Road and erecting on Site.

Telephone
171 FLEET.

The Pondtail Poultry Appliance Works, (Proprietor—
H. W. LEAMON),

WOOD LANE, FLEET. HANTS.

E. Bostock Smith

40 Pages of sound first-hand information

Write for a copy of my book "Profitable Poultry," post free for 1/-. (Price refunded to customers).

"Heaselands," Hayward's Heath, Sussex, England.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 13th, 1924.

Editorial.

DEGENERACY.

Last year we read an article by a well-known American expert, in which he attributed the degeneracy of our stock to alcoholic poisoning due to wet mash feeding. In a contemporary our good friend, Mr. Toovey, expresses the opinion that dry mash feeding is wrong, both scientifically and practically, and calculated to reduce the useful life of a hen. We believe we are correct in saying that Mr. Toovey's actual experience of dry mash feeding occurred some years ago, and was limited to six months. We have evidence on the many prosperous farms around us, where dry mash is exclusively used, that it is NOT wrong practically, and why it should be scientifically wrong to feed the mash dry, and scientifically right to feed the much more difficult to digest grain dry, perhaps Mr. Toovey will explain. We have an official test of dry *v.* wet mash feeding, which proved all in favour of the dry, not only as to production, but with health, size of eggs, fertility, condition in which birds went through the moult, and hatchability. However, we are not dealing with wet *v.* dry mash feeding just now. Certainly we don't agree with the American expert that degeneracy is due to wet mash feeding. We have only to use our eyes and draw on our practical experience to assure ourselves that he is very much wrong.

Here, then, are two reasons to which the degeneracy f our stock is supposed to be due, others are in-breed-ng, over-production, mating immature males, rearing n large flocks (our own particular idiosyncrasy), breed-ng from the precocious pullet (another of ours); there re also housing problems.

We may dismiss the question of the mash being fed vet or dry as in any way affecting the question. Given he composition of the mashes is sound, if two intelli-ent feeders were working under similar conditions, here would be little or no difference in the results.

Frankly we must say that we believe all this talk as o degenerate stock is very much exaggerated, and there s less reason for it to-day than there was seven or ight years ago. When we have a man writing to the ress to say that he has kept White Leghorns for 15 ears, and is now going to give them up, as their tamina is so poor that he can no longer rear them, hall we ask ourselves whether the breed or the man s at fault? What do we actually mean when we talk o glibly of degeneracy? What are the signs of it? s a high rate of mortality necessarily an indication? urely not. That may be occasioned by many things incidental to rearing. All this talk of degeneracy amounts to a general and indefinite accusation against some person or persons unknown, while in reality we as individuals are exonerating ourselves of any responsibility. If a man has been breeding fowls for many years, surely if his stock degenerates, he alone is to blame. Then if we see any signs of this degeneracy, is it not up to us, first of all, to put our own house in order? To ascertain the cause. There may be a combination of causes. If we may venture an opinion, it is to the effect that it is our methods of rearing and housing which call for most serious attention. With chicks the prevention of "massing" and better ventilation of brooders and under the hovers. With adult stock the ventilation of houses is the most serious question, and will do more to prevent and eradicate roup than all the advertised nostrums.

PEDIGREE AND LINE-BREEDING.

We have received the following letter from Mr Marshall:—

PEDIGREE AND LINE-BREEDING.

Dear Sir,—In answer to your Editorial of the 9th inst., you ask is my assumption correct that "pedigree breeding based on my definition means line-breeding?"

My reason for making this assumption is that unless you buy or exchange the male or female birds as necessity demands from the breeder from whom you bought your original stock you have no alternative but to continue breeding from your own stock (line-breeding), or cross the strain.

If we take the dominant factors of high fecund stock in both sexes, viz., males' shape, constitution, outward appearance and egg-laying capacity; females, temper, habits, size, constitution, and egg-laying capacity, we have not to look very far that if we mate a cockerel with the above factors to hens as above, the axiom "like begets like" I think is very applicable. Hence if high fecund stock is mated to high fecund stock it produces high fecundity. On the other hand, if high fecund stock is mated to low fecund stock the progeny (always looking to the cock being 9-10th of the breeding pen) would produce some high and some low fecund stock, probably 2-3rd former and 1-3rd the latter.

Presuming Smith and Brown both have a good pen of "pures," the dominant factors of both male birds would produce of a certainty their own particular characters in the progeny. As to wide variation, if you cross, this will depend entirely on shape, symmetry, constitution and outward appearance of the male bird, and unless Smith and Brown bought their stock from the same breeder the pedigree would be broken, and it would take from three to five years to produce or create a correct pedigree from these and **these** matings.

I maintain it is of greater importance to maintain strength, stamina and constitution coupled with fixing or attempting to fix the desirable characters, and leave the rest to the free use of the trap-nests.

Line-breeding is a very dangerous procedure for amateurs, and very great skill has to be exercised by experienced hands when breeding to create a pedigree.

Yours faithfully,
E. M. MARSHALL.

We quite appreciate the points raised by Mr. Marshall, but we are still of opinion that line-breeding

(Continued at Foot of Column on Next Page).

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

LINE-BREEDING.

A reader asks if I believe Mr. Poole's statement, that many breeders take a high place in the laying tests because they line-breed? I don't think that is what Mr. Poole intended to convey; he was simply trying to refute Mr. Marshall's assertion as to line and in-breeding. But to answer this question, breeders have not taken a high position simply because they have line-bred. The reason is, as I explained before, that line-breeding involves the continuous selection of exceptional individuals, and it is this selection that tends to breed improvement, and not the actual breeding in line, or the mating of closely related individuals. Several correspondents have written to know when they should introduce new blood. Again I can only say, that it is all a matter of observation. If the selection was absolutely right, then there may never be need to introduce new blood until some mistake is made; but if the stock is not exceptional, then the necessity for new blood will soon evince itself. I wish I could make it clear to some of our readers that as far as line-breeding is concerned you must start with the exceptional, and never lose sight of individual selection. On the average I think we get two enquiries a week, the writer begins by saying that his or her pullets have laid badly, and then concludes by asking if he should "line-breed." When I have written as to the necessity of starting with exceptional individuals, I don't mean exceptionally bad.

COMMUNITY POULTRY FARMING.

Some kind friend has sent me a copy of the "Canadian Poultry Review," in which is a most interesting article on the above subject. The originator of this enterprise is Mr. G. W. Miller, who has acquired 431 acres twenty-six miles from Toronto. The area will be entirely devoted to the production of table eggs and table poultry. The soil is a light clay loam, and is said to be unexcelled in Ontario for the growing of tree fruits and asparagus. These will be cultivated largely first for revenue purposes, and secondly for shade for the stock. When the community is fully developed it is estimated that it will house 150,000 laying hens, and that upwards of 300,000 birds wil be reared each season to keep the stock in the laying houses replenished. No hens will be kept more than two years, and because of the low price offered for Leghorn hens, a "cannery" will be established to absorb them. "It is confidently hoped that 'Community Brand' canned chicken will soon be one of the most popular delicacies found on the shelves of high-class grocers." Although other breeds may be kept by members of the community, only one breed will be allowed on one holding:—

"Anyone who has kept poultry in flocks of 3,000 or ove knows how impossible it would be to carry on with 150,000 bird under one management. The labour problem would swamp suc an undertaking before it got fairly started. It is a difficult thin to get hired help that will take the care necessary to get goo results from the birds. Some few men have succeeded in co ducting farms of 3,000 or 4,000 hen size with hired labour, bu only on a split profit basis that eats seriously into the earnings Besides, a man who is capable of handling a large flock c hens is generally desirous of being his own boss, and such man can, as a rule, find the means to get started on his ow account.

ONE-MAN ALLOTMENTS.

"This condition was taken full cognizance of in organisin this Community. The holdings are divided into lots of five acre each, capable of housing 2,000 layers and raising the chick necessary for each season to replace this number of layers with out hiring any help. The owner of an allotment can do i more readily because no time is wasted, and he has no problem in connection with the purchasing of feed or the selling of hi product. This is all done for him by the community organisatio —and done on a basis that gives him his supplies at a conside ably lower rate, and that brings him a much better price tha he could obtain if he was carrying on apart from the Com munity. It is believed that the hens on the Community will b fed at a cost of thirty-five per cent. less, and that the produc will sell for twenty per cent. more than would be the case wer the members buying and selling independently. For instance the feed will all be bought in car-load lots, and passed on a required to the individual members in hundred weights at prac tically cost. Only a small charge will be made for handling Because all the grain and other feed will be stored in on building, the holder does not have to make provision for storage He gets a bag or two of feed just as he requires it. Most of hi groceries, his meat, and other common living necessities, ar obtained at wholesale prices.

"The eggs will all be candled and graded before being ser to market. They will be packed in sealed cartons bearing th Community brand and guarantee. Their quality will be suitabl advertised, under the slogan, "Eggs of Known Quality," an because there will be no variation in this quality consumers wi soon come to have such confidence in them that they will readil pay a premium price for them. The overhead cost is too grea to permit a poultryman with a flock of even 3,000 birds to d any of this propaganda work, and for this reason he is generall obliged to take whatever price the dealer chooses to give hir This is particularly true if he is any distance from the large markets.

EDITORIAL.—Continued.

would not be necessary for the reasons we gave in the article.

There will always be variation. The degree would not perhaps depend so much on the relationship of the birds as on their genetic constitution.

It is hardly correct to say that "like begets like," it *tends* to beget like.

We cannot agree that the pedigree would be broken, as suggested by Mr. Marshall, as it is a pedigree of performance, and if the two strains were genetically the same, the pedigree would not be broken.

We agree that line-breeding is a dangerous procedure for the novice, and even an experienced hand has to exercise every care, for the introduction of one undesirable bird may wreck the work of years.

TWENTY YEARS TO MAKE PAYMENT.

"Each member owns his own plant. It is his just as surely and as completely as any other article or property he has purchased. He buys with the understanding that the Community will put up the necessary buildings, including a dwelling, and stock the plant with birds of the variety he desires. The chief requirements of the Community is that a man or woman taking up a holding shall be in earnest and willing to work. Given this condition only a small first payment is required, and the balance is spread over monthly payments up to twenty years. A member is under no obligation to buy or sell through the central organisation. This is his guarantee that he can never be held up by it either in buying or selling. Yet he has all the advantages of probably the most perfect co-operative organisation ever devised.

"Moreover, each member has at his command expert advice and instruction. Mr. Miller is personally in charge of this work. The majority of the members have taken the Coldbelt Poultry Course (although this qualification is not necessary to membership), and have learned therefrom to have complete confidence in Mr. Miller's ability to keep them out of the pitfalls on which so many poultry ventures have failed. As one member put it, 'With Mr. Miller's advice always at hand, we cannot make a failure.'"

This seems a most interesting proposal, and we shall watch its development with the greatest interest. One would like to know the actual terms of the agreement; what is the most vulnerable spot? Will it be in the individuality of those who take up the holdings? How are the many likely to be affected by the failure of the few?

F. O. R.

Quite a number of our members appear to misunderstand the meaning of these letters. For their information may I say that "free-on-rail" means that the goods quoted are not carriage paid to their station, but merely that they are delivered free of charge to the merchant's local station, charges from there to buyer's station have to be paid by the buyer.

It should be distinctly understood that "free-on-rail" does not mean carriage paid.

A WONDERFUL WYANDOTTE.

I have received the following letter from Mr. A. Levet. It is interesting to see how he has progressed and what can be done, in spite of what the pessimists say as to poultry not being profitable:—

"Dear Mr. Newman,—To-day (August 1st) completes the laying year of a 1923 White Wyandotte I bred (hatched February 8th, 1923). It commenced to lay August 2nd. L2 record 83, and to-day laid her 322nd egg, the weight of which is 2 ozs. (her average has been about 2¼ ozs.)—never broody.

I can guarantee that the bird has never had an egg recorded to her that she did not lay.

This is one of a batch that I fed on your menus in 'From Shell to Maturity' until I noticed the development of the chicks in the No. V. experiment at Wellingham, to which I switched over and fed all the chicks as they came along on the No. V. food, but I must say that the earlier ones—i.e., those started on your feeding, have, up to now, turned out the best layers. It may be that the others who have longer to go to complete their yearly record may catch them up, but there is the probability of the moult stopping them.

I give you the records to July 31st of the eight birds in the pen with the bird referred to earlier. They were selected by me by handling, and finding their records were good I made up a pen of them. You will see the result to date.

No of Pullet.	Commenced to Lay.	L2 record.	Total to date, July 31st.
15	Aug. 2, 1923	83	321
23	Aug. 14	52	227
35	Sept. 1	71	226
38	Sept. 6	58	200
41	Sept. 13	63	230
51	Oct. 5	69	221
58	Oct. 18	57	177
62	Oct. 23	42	188

Only two have ever been broody. I restarted poultry-keeping after a lapse of some years, in January, 1923, and found the business revolutionised.

I took 'Eggs' and joined the S.P.B.A., and I ascribe my success to the most valuable assistance I have received from both 'Eggs' and the Society.

Out of 94 White Wyandotte pullets that could qualify L2 no less than 64 did, and nearly 30 of these have already reached the 200 mark and over.

I started with 16 birds and now have between 800 and 1,000, and have disposed of a few hundred.

Wishing 'Eggs' and the Society their well-deserved and continued success. I am,

Yours faithfully,
ARTHUR LEVET."

NATIONAL EGG-LAYING TEST, 1923-24.

REPORT FOR THE MONTH—12th JUNE TO 9th JULY, 1924.

The weather throughout the month was very hot and dry, with no rain from first to last. As the result of this and the unusually large number of broodiness (592 in all), a further sharp decline in production is to be reported. The total number of eggs recorded was 32.38, or 15.88 eggs per bird—these compare with the previous month's figures of 35,842 and 17.69 respectively.

The highest daily collection was 1,267 eggs made on the 3rd day of the month, and the lowest was 993 eggs on the 24th day.

Moulting has become general rather earlier than usual—doubtless brought on by the sudden and extreme heat, from which the heavy breeds naturally suffered the more severely, as is shown by the breed averages—their average for the month, of 14.01 eggs per bird, compares with 16.89 per bird by the Light Breeds.

The average to date of the Light Breeds now stands at 139.57 eggs per bird, and the Heavy Breeds 134.82, while that of the Championship Section is as high as 145.01 per bird.

Up to date 17 birds have scored 200 eggs or over. The general health of the flock continues to be good.

SUMMARY OF LEADING PENS.

Section 1.—Championship (10 Pullets).—1, Fowler, Miss M., 1,655 eggs; 2, Rogers, Warwick, 1,619; 3, Golden, W. M., 1,489.

Section 2.—White Leghorns (5 Pullets).—1, Welch, F. R., 914 eggs; 2, Knight, Mrs. E. M. L., 920; 3, Gonne, Capt. V. C. M., 871.

Section 3.—Black Leghorns (5 Pullets).—1, Snowden, Frank, 861 eggs; 2, Berry, P. K., 789; 3, Margerison, I., 789.

Section 4.—Non-sitting Breeds (5 Pullets).—1, Thompson, J. H., 764 eggs; 2, Hall, R. Charles, 752; 3, Reed, R. B., 723.

Sub-Section 4a.—Exchequer Leghorns.—1, Outhwaite, Sam., 630 eggs; 2, Cayley, Vice-Admiral C., 575; 3, Bloom, D. G., 512.

Section 5.—White Wyandottes (5 Pullets).—1, Rodwell, Richard 857 eggs; 2, Seddon, Harold, 848; 3, Rayner, G .H., 841.

Section 6.—Rhode Island Reds (5 Pullets).—1, Salt, W. & T., 879 eggs; 2, Capper, A. H., 782; 3, Reeves, G. W., 770.

Section 7.—Sussex (5 Pullets).—1, Rossall-Sandford, F., 777 eggs; 2, Bradbury, W., 767; 3, Slade, M. W., 721.

Section 8.—Sitting Breeds (5 Pullets).—1, Skinner, Miss K. B., 905 eggs; 2, Welch, F. R., 785; 3, Morrison, D.S.O., Major J. A., 776.

Sub-Section 8a.—Austral Orpingtons.—1, Parsons, H. R., 794 eggs; 2, Chaloner, Hon. Elizabeth, 550; 3, Adams, Hon. Mrs., 700.

Sub-Section 8b.—Buff Rocks.—1, Welch, F. R., 785 eggs; 2, Bell, Miss Harrison, 762; 3, Wood & Nathan, 758.

Sub-Section 8c.—Orpingtons.—1, Morrison, D.S.O., Major J. A., 776 eggs; 2, Gough, P. J., 662; 3, Simpson, Mrs. K., 624

Section 9.—Members N.U.P.S. (2 Pullets).—1, Robinson, A. H., 350 eggs; 2, Hufton, S., 366; 3, Foster, D. P., 322.

Section 10.—Teams (5 Pullets).—1, Tottenham Utility Poultry Society, 845 eggs; 2, North Essex Branch, 765; 3, North Lancs. & Westmorland Utility Poultry Federation, 765.

Modern Poultry Feeding.

By TOM NEWMAN.

THE FOOD AND THE FEEDER.

I think it may be safely said that more failures in feeding are due to lack of observation than to any other cause; there are numbers of people who can work out an albuminoid ratio to a decimal point, who can never successfully feed a flock of fowls for egg production, or rear a chick to healthy maturity. They understand food values, but they miss a connection somewhere, and they never get results. They rely on their mathematical calculations, and they never study the birds, and a flock of birds, if it is to be profitable, needs some studying.

A good feeder knows when his mash wants adjusting, when there is an excess of protein or a deficiency, whether the bulk should be increased or decreased, whether there is too much fibre, or a deficiency of the energy producing foods, and he will not find it out by burning the midnight oil. The birds themselves must be his guide; close observation will tell him whether his feeding is wrong or not.

It is important to remember that we are dealing with the flock and not the individual; too often a mistake is made which has serious results, because this is forgotten. A bird dies, and is sent to the expert for post-mortem examination—the verdict is "fatty degeneration." Accompanying the report is some advice as to feeding, sound enough in itself, but based on the individual and not always applicable to the flock. I have known a whole flock to be thrown into a premature moult on more than one occasion by this well-meant advice being implicitly followed. In every flock there will be birds with a predisposition to fat, and there will be others which always suffer more or less from digestive trouble; to make radical changes in the feeding on their account would be a serious mistake.

An excess of animal protein is indicated in various ways, the excreta is generally of a mustard colour, the combs inclined to black at the tip. The egg itself will be some indication, often it is thin shelled, the yolk small in proportion to the white, and the white inclined to be watery. My experience is that a deficiency rarely occurs. No serious results manifest themselves if there should be, only that production will be comparatively small. The best way to avoid such a deficiency is to remember that the mash should not contain less than 10 per cent. and not more than 15 per cent.

Excess of fibre is evidenced in the watery condition of the excreta; sometimes blood is passed, and undigested food is seen. The birds soon get out of condition, the plumage looks rough. This can only be put right by reducing the bulk of the mash. Most frequently I find this is due to an excess of clover or alfalfa, very often from inferior ground oats being used in conjunction with poor oats as the grain feed, and sometimes to excessive use of poor bran.

If there is a deficiency of the energy-producing foods, which occasionally occurs, the birds are in under condition, the eggs small and laying intermittent. That should be apparent to everyone, but unfortunately it is not, and there is far too much underfeeding. A man's eye should be guide enough as to whether his birds are underfed or not, and if he cannot rely on that he should consider his egg production and handle a few of his pullets; just let him feel the abdomen, place his hand between the pelvics and the keel.

I should have mentioned the feeding of an excess of cooked vegetables—I mean swedes, mangolds, turnips, cabbage. When this occurs, and it often does, the digestive juices become dilute, and the tissues soft and flabby, due to excess of fluid in the system. This will happen, too, if the mash is continually fed in a sloppy condition. Birds as a rule look anaemic, egg yolk is often pale. I remember one case where this excessive use (please note I am speaking of "excessive") resulted in a very low hatchability even under hens, in that case a large percentage of the vegetable matter was swedes and cow cabbage. There was a good deal of correspondence before I was able to suggest the cause, and then it only came about by the writer complaining of the difficulty of getting the mash in a crumbly condition.

As a rule, the majority of pullets will start their laying career in slightly under condition; this is a very grave mistake and results in serious loss during the three months—October, November and December. A pullet at the beginning of September should be PLUMP, and if she is not, then she should be fed to make her so. The danger of a pullet being too fat to lay at the beginning of her career is too small to be worth consideration. Your poor producers will be overfat; if well fed, at Christmas your eyes and your hands will tell you which they are. Those sleek full-faced birds, with bright yellow beaks and shanks, the latter round instead of flat, slack feathered; in white plumaged birds the feather is often inclined to be creamy, not the dead white you get with the layer. Now handle them, and feel the abdomen, you will find it full and hard; note the eye, it will not be prominent and bright, but receding and dull. Look closely at the shanks, you will see that they are filled out with fat, and are not hollow like those of the pullets which have laid their 40 or 50 eggs during this period. Such birds will never be any good, and it will be wise to get rid of them as soon

(Continued at Foot of Column on Next Page).

The Rearing of Chickens on the Intensive System.

By Drs. J. L. ROSEDALE and R. H. A. PLIMMER.

(Continued.)

C-VITAMIN REQUIREMENTS.

C-vitamin appears to be unnecessary for birds from the fact that they grow in the shell to the day of hatching and the contents of egg are not known to have any antiscorbutic value. Young animals are more susceptible to scurvy than adults. Many workers on beri-beri have kept birds for long periods without adding antiscorbutic substances to the food, and more recently Mitchell, Kendall and Card (1923) kept chickens for about twenty weeks without adding C-vitamin. A period of twenty weeks can hardly be considered long enough to prove that chickens do not require C-vitamin. It was intended to test this question over a period of at least one year, and it was hoped in that time to raise another generation.

The birds of Groups VI. and VII. were used. Those of Group VI. were started on June 22nd, 1922, and dispersed on August 10th, 1923—a period of fourteen months.

The hens of Group VI. began to lay in December, 1922. No satisfactory record of their egg production was possible as they ate many of the eggs. Marmite was gradually raised from 1.0 to 2.25 g. rice in order to try to stop the egg eating. It had not altogether the desired effect.

Eggs laid in February, 1923, were unfertile. Those laid in March were also mostly unfertile. The A-vitamin content of these eggs was now tested by Coward and Channon, and found to be less than the ordinary egg. On this account the cod liver oil in the diet was raised from 0.5 to 22 cc. per bird per day. Greater fertility was then shown, and of three eggs tested under a broody hen one hatched out and the chick was reared. At the same time eggs of hens of Group VII. were tested, and two eggs hatched out, and the chicks have been reared. Later some eggs of Group VII. were hatched in an incubator. A second generation has thus been obtained from both Groups VI. and VII. Group VI. was dispersed, but Group VII. is being kept for testing some of the factors concerned in hatchability.

Pigeons, ducks, geese and the other birds have all been kept in health without the addition of antiscorbutic substances to the food. It may almost safely be concluded that birds in general do not require C-vitamin.

The use of green stuff for birds is not for the C-vitamin which it contains.

PIGMENTATION OF THE BIRDS.

It was shown by Palmer and Kempster (1919) that the yellow colour of the legs, beaks, and the yolks was derived from the yellow xanthophyll pigment found in plants, particularly in yellow maize and green foods. By feeding chickens on white maize and other foods containing very little yellow pigment birds were reared with white instead of yellow legs and beaks, and their eggs had pale yellow yolks.

Our birds of Groups I., II. and III. had eggs with pale yellow yolks. The pigment was derived from the oatmeal.

The birds of Groups VI. and VII. on a diet of white rice and dried skim milk had eggs with yolks free from the yellow pigment. In a hard-boiled egg it was difficult to distinguish the yolk from the white. The chemical composition of the yolk was not abnormal, and the taste not different from that of an ordinary yellow-yolked egg.

This absence of pigment from the yolk led to the expectation that the chicks hatched from these eggs would be white. Except for small patches of a dark sort of yellow over the back, the chicks were white. The yellow of the day-old is thus the

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THE FOOD AND THE FEEDER.—Continued.

as possible; they are fat, not because of overfeeding, but because they are not laying.

Now food prices are jumping, and we may effect a considerable saving if we study the pullets before we place them in their permanent quarters. Let us assume we are dealing with April-hatched White Leghorns. Sexual development is indicated to a great extent by the comb and wattles, and in looking through a large flock it will be noticed that some of the pullets will be far more advanced in this respect than others ; this is a sign that the ovary is becoming active, and, although by no no means infallible, it will be found that most of your best layers will be amongst these birds, because, as so frequently explained before, early sexual maturity is allied to high fecundity. Good layers always feather early down the back as chicks, get their adult plumage earlier, and at the beginning of September if they have been properly reared there is a nice sheen on it. Observe the heads of your birds very closely, cast out those with long tapering beaks, dull and sunken eyes; allied to these you will find the comb of a yellowish colour and not showing much development. Such birds are usually long on the leg, the yellow pigment is lacking, the plumage is hard and dry, and there is no body depth. Undersized birds should be cut out at once; it is useless to keep them in the hope that they will grow—they will not. They have received a permanent check. Be sure your pullets are PLUMP. They must have fat in their bodies to lay. If you are not satisfied in this respect, then increase the maize, or give an extra feed at night.

yellow of the yolk, and is derived from the yellow food of the parents. The whiteness is not an abnormality, and disappears as the chicks grow and assume the feathering of the strain (Light Sussex).

THE AVERAGE WEEKLY WEIGHTS.

The average weekly weights of the several groups of birds are arranged in the following table according to strain, so that the growths can be more easily compared. The figures are given in grams:—28 = 1 oz., 450 grams = 1 lb. approximately.

In addition to the symptoms of leg weakness which occur if the amount of B-vitamin (Marmite) is not sufficient, the effect of inadequate amounts is shown in the weights. Groups I. and II. at the fifth week had signs of leg weakness ; at the same time the weekly weight increase decreased. This is also seen with Groups IV., VIII., IX. and X. The last group had died by the 8th week. The effect in Groups VIII. and IX. were produced by excess of cod liver oil (fat).

Groups III. and VII. probably show the maximum rate of growth of Leghorns and Light Sussex, though slightly greater rate of growth has been seen with Light Sussex in the experiments by Miss Malcolm and Mrs. Pember at their farm, with diets of almost the same composition.

The most interesting comparison is between Groups III. and XI. Both groups had sufficient but not an excess of B-vitamin. Greater growth was produced by the high amount of animal protein in the food, in the form of casein and secwa. It is very remarkable that Group XI. with five parts of fish meal were only from one to two weeks behind for the same weight. The comparison shows that the casein and secwa (or dried skim milk) can be replaced by fish meal, and that ten parts of fish meal are likely to give an equal rate of growth. With an increase of fish meal it is also advisable to increase the amount of B-vitamin. Our later, as yet unfinished, experiments show that proteins as well as carbohydrates requires balancing by B-vitamin. The balancing of the combustible constituents of the food was first noticed with Groups I. and II. on adding excess of cod liver oil ; Groups VIII. and IX. confirm this, that excess of fat needs balancing. Further work on this question is now in progress.

In all experiments a sufficient supply of B-vitamin and addition of animal protein is indicated.

THE FOOD CONSUMPTION.

All the food given to the birds in each group was carefully weighed. A definite quantity of each mixture was prepared daily, or every two days; a portion was given to the birds in a suitable tray, and more was not given until it was finished. Food trays were seldom empty for any long period. The birds were thus fed with as much as they wished to eat.

The weekly amounts of food as compared have been added together and divided by the number of days and the number of birds, so as to give the daily food consumption per bird during each week. These figures are collected together in Table II., and are given in grams (28 grams = 1 oz.). A difference of 10 to 15 grams in consumption should not be looked upon as a great difference; sometimes a food supply was made up at the end of a week and lasted into the next week, and it is reckoned as part of the first of these week's supply.

Only Groups III., V., VI.C, VI.M, VII.C, XI. never suffered from signs of leg weakness. The figures for these groups will present the normal food requirements.

In the other groups the food intake was less at the time of illness owing to loss of appetite; it generally lasted over several weeks, and on recovery the food intake was about the same as the above groups at the same age.

The food intake was much the same on any of the diets, whether oatmeal or rice was the carbohydrate, and it corresponded more closely with the weight of the bird than with the actual age.

The figures for Groups VIII. and IX. show the decreased appetite with just sufficient B-vitamin in the diet and with excess of cod liver oil. The birds always had signs of leg weakness.

At maturity (16-20 weeks) the food consumption corresponded with that usually stated as the adult bird's requirement (4.5 oz.). The heavier Light Sussex, as expected, consumed more food than the lighter Leghorn.

In general, the food requirement of chickens at all ages from hatching to maturity under intensive conditions may be said to be given by these data.

TESTIMONIALS.

Frewins Close, South Stoke, near Reading.
9th April, 1924.

Dear Sir,—Your paper, " Eggs," is greatly appreciated, and I shall recommend it whenever possible.

Yours faithfully,
(Signed) (Mrs.) J. V. KIRK.

25, Woodland Road, Barry Dock, Glam.
10th April, 1924.

Dear Sir,—I am only a backyarder, yet I may say I have learnt already quite a lot from its columns, and am bringing your paper before my fellow-members of the Barry Fur and Feather Society at our next meeting. With anticipatory thanks.

Yours faithfully,
(Signed) F. CURLE.

80, Cobden Street, Walsall, Staffs.
25-9-23.

Dear Sir,—I would like to add my personal thanks to your good self for the instructive articles you write and publish from time to time in " Eggs," which have made the keeping of poultry much more enjoyable and also profitable, especially for the backyarder and small man generally.

Again thanking you for past help, and hoping you will be able to keep on the good work.

Respectfully yours,
(Signed) E. O. MORRIS.

Goat-keeping and Poultry.

By Mrs. EPPS.

ARTICLE II.

REARING SMALL LIVESTOCK ON GOAT'S MILK.

A goat is a most valuable asset to the poultry farmer; all who have tried rearing small livestock with the aid of goat's milk are agreed that the process looses half its terrors. The young creatures show a resistance to disease and bad weather, and a rapid growth and development, that are noticeable in excess of those of animals reared by other methods. A striking example of this was brought to my notice not long ago when a friend told me that she had received an order for some kids from her heavy milkers from a man who was breeding silver foxes in the north of Scotland. He said that he was satisfied that the cubs reared on goat's milk produced pelts of far better quality, both as regards skin and fur, than the others, and he therefore intended to run a herd of goats.

Again, the journal "Vie de la Campagne" for June prints an account by the Comtesse Brossaud de Juigne of her method of rearing Angora rabbits. The Countess is a well-known breeder of this variety, and her exhibits at the Exposition d'Aviculture at Paris this year scored first and other prizes. She attributes her success entirely to selective breeding and goat's milk. She states that, having the misfortune to lose one of her breeding does, she was obliged to feed the youngsters on goat's milk, and to her surprise when they were weighed they proved to be considerably heavier than the others of a same age, and she has therefore adopted this method with all her Angoras.

My own experience of the use of goat's milk in the rearing of young things coincides closely with the foregoing, and I have now tried it with most excellent results in rearing—firstly, my own children, then ducklings, rabbits and spaniel puppies, and I will give a few details dealing with each.

Firstly, the **human family.**—The eldest child did not have the advantage of being brought up on goat's milk as he joined my family before I was a goat-keeper. Like practically every other child on a diet of some form of cow's milk he suffered more or less with constipation. The second child had no goat's milk until two year's old, and until then also suffered somewhat with this form of indigestion, but after two years, when goat's milk was used instead of cow's milk, no form of digestive disorder whatsoever was experienced. The third child began to take goat's milk diluted with one-third water at three months old, and was soon taking the milk undiluted, and, of course, unboiled, and has never known any digestive trouble at all. All these children take an astonishing quantity of goat's cream with excellent results. I can safely assert that few adults could take an equal amount of cow's cream without experiencing disastrous consequences.

Secondly, **Ducklings.**—I found that from the shell onwards my Buff Orpington ducklings did particularly well on goat's milk, growing at a great pace, the drakes being at three months old quite fit for the table, and the ducks coming into profit extremely early. The feathering stage was passed through with no trouble.

Thirdly, **Puppies.**—These did wonderfully well. One mother produced and reared nine puppies in a litter, an achievement which I doubt would have been possible had she not had a plentiful supply of goat's milk given her. One puppy (as is usual with large litters) was a very weakly little creature, but at a fortnight old, as he still survived, we began to give him a few spoonfuls of goat's milk daily, and he soon grew into a fine fellow.

Fourthly, **Rabbits.**—I find that my Chinchilla rabbits do exceedingly well with the aid of goat's milk. The mothers take it readily, and infant mortality is reduced to a minimum. I have not yet marketed pelts of animals so reared, but when I do so in the autumn I intend to make inquiries of the furriers as to their quality as compared with others.

All this reads somewhat like an advertisement for some wonderful patent medicine, but I can assure my readers that no one has anything to gain but those who install a goat; there is no doubt that poultry of every description would do well on goat's milk, while the cheapness of its production compares most favourably with both cow's milk fresh, and its many tinned and preserved forms, and if a garden is run in conjunction with the poultry farm it will be found that the manure from the goat is of great value. There is also the added attraction of being able to dispose profitably of surplus produce and garden waste.

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GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG-LAYING TRIALS.

Report for Tenth Month.

Heavv Breeds.—1, J. Joshua, Tondu (R.I.R.), 523 eggs; 2, J. Joshua, Tondu (W.W.), 564; 3, J. H. Williams, Pontardulais (W.W.), 498; 4, Eaton and Poor, Pontardawe (W.W.), 510; 5, T. Rees, Ystrad Mynach (W.W.), 521; 6, Howell and Phillips, Barry (R.I.R.), 419.

Light Breeds.—1, Howell and Phillips, Barry (W.L.), 604 eggs; 2, C. Spiller, St. Fagans (W.L.), 574; 3, J. R. Thomas, Barry (W.L.), 551; 4, C. Spiller, St. Fagans (W.L.), 605; 5. D. A. Hann, Pengam (W.L.), 601; 6, R. J. Evans, Abertridwr (W.L.) 584.

C. F. DUNKLEY, Manager.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

F. T. (Peterborough). Your pullets are hanging fire because your feeding is altogether wrong; it is impossible for them to develop on such a mash. Replace the maize meal with Sussex ground oats, add four parts middlings, two parts good broad bran, and one part meat and bone meal. Supply plenty of fresh green food, and in place of the kibbled maize give equal parts good plump oats and wheat. Stop the rice at once. (2) It is probable that your hatching results were due to the feeding, if it was on a par with the above. I cannot say, however, unless you send particulars as to your methods of incubating.

S. K. (Skipton). Well, you see, I like to think that I am writing for intelligent people, and those who have not intelligence enough to know that cleanliness is an absolute necessity will never learn anything, and will not be long interested in poultry. We try as much as possible not to say the obvious in "Eggs." (2) The cockerel is "ricketty." This may be due to mistakes in feeding, from bad ventilation in the brooders, or to inherent weakness; certainly you must not use such a bird in the breeding pen, I am rather surprised you ask such a question. (3) As you have plenty of skimmed milk, the best way to use the damaged rice would be to cook it in milk, and dry it off with an equal quantity of bran and middlings, and add 5 per cent. meat meal. (4) Red mite and the parasite which causes scaly leg are two totally different things. Capt. Leeney wrote some articles on this subject some months ago; you should study them.

Worrier (S. Devon). The fault is that you are running chicks of various ages together, and until you alter this their development is bound to be unsatisfactory. You should grade them at once, and pay particular attention to the feeding and housing of those which are so backward. If you can give them skimmed milk it would greatly help them; the best tonic is good feeding and housing. They should all be perching now, and you must provide suitable perches, and try and induce them to perch. A good winter formula for your pullets would be 2 lbs. bran, 4 middlings, one each of ground oats, maize meal and meat and bone meal. This can be given as a dry or wet mash; in the former case it should be before them all day, in the latter the bran should not be scalded but reserved to dry off the other ingredients with.

Avicus (Derby). As you do not wish to trap all the pullets the best plan will be to select 100 of the best. With due regard to age, select those which exhibit the most evident signs of maturity; this will be marked by development of comb and wattles as well as the body. If you have large birds at the time which do not show much development of comb and wattles, it will be wise not to include these. Look for deep-bodied birds, with good capacity between pelvics and end of keel, close feathered, and with bold bright eyes, and short beaks; reject the spindly ones, those which are undersized, and any which have coarse heads with beetle brows and long tapering beaks. If you follow on these lines you will not make many mistakes. You should be able to do this at the beginning of September. As your ground is rather wet, I should confine the birds to the houses for the greater part of the winter months. Pleased to hear you were so successful in rearing on my formulas.

C. M. (Ayr). Your birds appear to be suffering from digestive trouble, due to excess of fibrous matter in the food. As you cannot get Sussex ground oats, replace the crushed oats you are using with the same weight of maize meal. For the present it would be better not to feed oats at all. Make the grain feed equal parts wheat and kibbled maize; the thirds are too coarse—it would be better to use a finer sample. The bran is fair, and the quantity you are using is not excessive in proportion to the other ingredients; it was the quality of the oats which unbalanced the mash. If you follow these directions I think you will soon see an improvement. A good tonic would be:—2 ozs. of sulphate of iron dissolved in a quart of water, one teaspoonful of the solution to every pint of drinking water; continue this for a fortnight or three weeks, not longer. (2) The Wyandotte pullets are too late hatched for you to think of breeding from them next season, immaturity on the part of the female cannot be compensated for by mating to a second-season male.

Stranger (N. Wales). As you are thinking of commercial egg farming you have no cause to worry over line-breeding. This would be difficult on a commercial egg farm, because if it is to be successfully practised it is necessary to know the history of every bird in the breeding pen, and it would be almost impossible on a commercial egg farm to get enough individuals to form a sufficiently large breeding pen. (2) If I were running a large commercial egg farm, I should trap enough pullets during October and November to select my breeders from, but they would be selected pullets. (3) If I were running a commercial egg farm with heavy breeds, I should choose the Rhode Island Red in preference to the Wyandotte. (4) If the ratio were 1:6. and you added sufficient animal protein to bring it to 1:4.5, that would not necessarily make it a balanced ration; that merely alters the ratio. For it to be balanced it would be necessary to have all the constituents in their proportions. There may be a big deficiency of mineral salts, even with a ratio of 1.4.5.

Surreyite (Woking). The condition of the excreta and the black tipped combs indicate that you are feeding an excessive amount of animal food, and I would advise you to reduce it by one-half at once; such feeding is very extravagant, as the birds cannot assimilate it. (2) The moult is not infectious. Where did you get such an idea? No practical poultryman would make such a suggestion. No; Epsom salts will not help moulting birds any more than they will cure cancer or tuberculosis. The birds want to be "toned" up during the moulting period, not dosed with salts. (3) I think you chose the cockerel well in spite of the fact the dam's record was not so high as that of the other; the tale of eggs is not everything, as you say, and your description of the other bird marked him as a poor breeder. (4) Yes, the Black Leghorn is rather wild, but that is largely a matter of management, and properly managed it will become quite tame.

New Reader (Warwick). It would appear that the stock is at fault as there is nothing very wrong with your management. The house will not accommodate more than 20 birds at the utmost, and you are a little crowded, but not enough to explain such results. There seems little likelihood of your being able to select a breeding pen from them, and the best plan would be to sell the lot at once, and, as you suggest, give Anconas a trial, as you favour this particular breed; they would do well under your conditions. (2) The samples you send are all of good average quality and fair value, except the bran, which is very poor, not good enough to feed.

W. T. L. (Hastings). You are paying a very high price for foods of inferior quality. Your miller is right, it is difficult to get good broad bran; the sample you send is simply the common bran passed through the rollers twice and flattened out, and it is not worth 12s. 6d. per cwt. I have a similar sample of fish meal sent me from Lewes this morning to the one you send. At Lewes it is 21s. 6d. Why you should be asked 26s. for it at Hastings passes my understanding, and it is an inferior sample at that. The middlings are only just fair, the barley meal too coarsely ground. The Sussex ground oats are a poor sample, and the maize meal not at all good. I think it is time you had an explanation with your miller. I am glad you think "One-Man Poultry Farming" so good, that seems to be the general opinion.

A. J. (Chester). Presumably you want a fattening ration for the cockerels. In that case it would be better not to let them out on the grass run, the following would be a good mash:—2 lbs. middlings, 1 Sussex ground oats, 1 barley meal or biscuit meal, ½ meat meal. Give them this twice daily, as much as they will eat in a quarter of an hour, and, in addition as a last feed, boiled rice or wheat. I cannot give you quantities, as much as they will eat in a quarter of an hour. Do not leave uneaten food before them. Allow eight to ten inches per bird for perching room.

A. B. (Folkestone). "Vitamins and the Choice of Foods," Plimmer, is published by Longmans, Green and Co. Sherman's "Chemistry of Food" and MacCollum's "The Newer Nutrition," by MacMillan and Co.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Capt. E. P. Keeling, Ridgeway P.F., Rayleigh, Essex.
Bristowe, Miss E. F., Barncote, Danes Hill, Woking, Surrey.
Barron, Miss N. L., Berkeley Lodge, Blandford, Dorset.
Hallett, Miss W. A. Miller, Goddington, Orpington, Kent.
Watson, J. G., Elmslea, Cranleigh, Surrey.
Brett, E. G. J., South Street, Rochford, Essex.
Morton, T. H. W., 13, Davis Road, Richards Town, Bangalore, S. India.
Smith, James, Gayfield P.F., Rothesay, Bude.
Kirkby, J. Burton, The Old Parsonage, Turton, Lancashire.
Atlee, P. S., The Park, Wisborough Green, W. Sussex.
Harrison, B. R., The Old House, Didbrook, Winchcombe, Glos.
Hazlerigg, Lt.-Col. P., Goadby, Tugby, Leicester.
Lacy, Douglas, Loddington P.F., Bishops Stortford, Herts.
Thorp, F. W., Willamy, Queen's Road, South Lancing, Sussex
Choveaux, L. N. (Junr.), Great Barton, Bury St. Edmunds.

Bees.

By E. W. D. MADOC.

REMOVING THE SURPLUS.

In most localities the honey season is drawing to a close, and the honey is ready to be removed.

It is best to get most of the honey off before the honey flow actually ceases, to save having trouble with robber bees, and because the bees are much better tempered and less inclined to sting when there is still some honey coming in.

The easiest way, and certainly the best where sections are concerned, is to make use of the Porter bee-escape; the essential parts of this device are two V-shaped springs, through which bees can pass one at a time and in one direction only. These springs are mounted in a specially-made container which is in turn mounted in a board, which is placed between the crate of sections and the brood nest of the hive so that the bees can pass from the super to the brood nest, but are prevented from returning by the action of the springs. Within twenty-four hours of putting on the escape the sections will generally be found free from bees, and ready to remove.

The only objection to the use of these escapes for extracted honey is that the honey when taken off will not be so warm as if it had been taken straight from the bees and extracted at once, and will be rather more difficult to extract for this reason.

When honey is taken off after the honey flow is over the use of escapes will save much commotion and robbing, but great care must be taken to see that no cracks are left for robber bees to get into the super over the escape.

Many people remove as much honey as possible and rely on sugar feeding for winter stores, but better results are generally obtained by leaving an ample supply of honey on each hive. After extracting the honey it is important that it should be placed in a "honey ripener," or other large vessel, so that any honey which is not quite ripe, together with any impurities, such as pieces of wax, may have a chance to rise to the top and be removed before the honey is finally put away in the receptacles in which it is held.

Finally, it is important to store the honey in a suitable place. Many people seem to think that the cellar is the place to keep it, but in fact it is the worst possible place because honey readily absorbs moisture from the air, and becomes thin, and finally turns sour. If, on the other hand, it is kept in a warm dry room, it will keep in perfect condition for an unlimited time.

Utility Duck Club Notes.

By HUGH B. CARRINGTON.

The present month is one which, by many, will be dubbed the off season, the really lucky ones among us have gone or are going for a holiday. The writer sincerely wishes he could number himself with these lucky people, but, unfortunately, has yet to discover any season to which the title "off" may fairly be given. For instance, these notes have to be written under any circumstances, though I admit that they will be very short this month.

My own feeling about August is that whether on holiday or not, it should, as far as ducks are concerned, be a period for reflection. This sounds rather like an admonition delivered from the pulpit, but it is quite seriously meant; in short, it is a time to look back on mistakes committed in the past, and to make good resolutions for the future.

The writer does this every year, and like most good resolves they have a horrid habit of being neglected when it actually comes to the point; anyway, if some are carried out the reflection will have been worth while.

At the moment the chief topic for study is the performance of the trap-nested birds up to the end of July. I believe that the past month is one of the best for picking out the good breeders for next season, and what is exceedingly important, it applies, not merely to the 1923 hatched birds, but to those of earlier date. It may have been noticed by careful observers that it is not infrequent for a bird with quite a moderate record in the first year, perhaps round about the 180-200 egg mark, to improve in its second season on the first year's record, and improve considerably too. It may also have been noticed that a very high record bird will sometimes fall away sadly, both in the quantity and quality of the eggs it lays in its second season.

To my mind there can be no question which of the two classes of birds it is best to breed from, the bird which can average round about 200 eggs or so for each of its first two years' laying is an ideal breeder, provided, of course, that the quality of the eggs has been good. On the other hand, it will frequently be found that the stunt layer of very large numbers of eggs in its first season produces bad hatching and rearing ducklings. There are, of course, plenty of exceptions to these rules. I have had very heavy layers who have retained all their vitality, and others which have lost a great deal of it.

The temptation is to include in the breeding pens any birds which have put up a very high record, the quality of what they have laid being a secondary consideration. It takes some courage to scrap the very high producer, knowing in your heart of hearts that it is not quite sound, but it is the right procedure, and the only right procedure, if strong healthy stock is to be obtained. The temptation to advertise a pen with a wonderful average, solely by reason of its average, is very great, but it is not good business to do so in more senses than one if the stamina of the birds has not been scrutinised as closely as the average egg production.

To revert to the actual selection of the birds. There are, I think, two chief points to look out for. Any bird which can qualify for examination should have been proved a really good layer, as far as quantity is concerned. Granted that it passes this qualification, it will, of course, have been through a very severe strain by the end of July. The questions to be put to it are, How has its body and how have its eggs stood the strain? If it has become a mere bag of bones decked about with a few feathers, it is doubtful whether it will ever be a good breeder, if also the eggs it has laid during the last month have been small—a reasonable reduction in size need not be worried about—consistently bad in shape, a very important point, and regularly thin shelled, or soft shelled, it is most unlikely that it will ever be any use in the breeding pen. Personally, I should disqualify the bird at once if it laid eggs regularly of bad shape. If both bodily condition is poor and the eggs are poor, it is also a case for immediate disqualification.

The ideal bird is, of course, the one that shows none of these effects of heavy laying. A bird which still handles well for weight and condition, and still lays a good egg, with nice size and texture, in my opinion, is well worth marking down for the breeding pens, even if it cannot boast a very high record. The very high record bird that passes these points as well is worth its weight in gold.

In order to discover all the points mentioned above trap-nesting is absolutely essential, and till it has been practised it is impossible to realise how extraordinarily interesting the work is, and how very valuable the results. To those who are not members of the club I would particularly commend a U.D.C. Leaflet, written by Captain G. C. Heseltine, entitled "The Use and Abuse of the Trap-nest," price 2½d., post free, to non-members.

If anyone wishes to start using trap-nests for ducks, now is the time to be up and doing, for the young birds ought to be trained to them, if possible, some time before they come on to lay.

There remains one point to mention about the selection of the future laying stock. Just as it is, I believe, with chickens, the late moulters are the ones to keep an eye on, and will almost certainly prove to be the best birds. On the whole, ducks moult earlier than chickens, but I like those

(Continued at Foot of Next Column.)

Some Fruit-Growing Notes to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

MANURING FOR FRUIT BUDS.—In my article for June 18th, on "Is the weather to blame?" I mentioned that "Cultural treatment to help in the formation of fruit buds and feeding in the right way and at the right time all have their influence on development, and ultimately help to settle good or bad crops," and I promised to write again on this and other points then mentioned.

To be in season I have chosen the above subject as likely to be most useful. Let me say at once that the manuring, or feeding of fruit trees, is at times certainly a little puzzling, because we are still waiting for some experiments to be made on a wide scale, or the results of some, now in hand, to be published.

Putting together one's own small experiences and all the information that can be gathered from available sources we realise, firstly, that young trees do not take much out of the soil, as regards the effects on fruit bearing, particularly if at first pruning and training has been done mainly to get well-established trees and not all possible fruit. On the other hand we are faced with the fact that as soon as fruit trees are bearing heavily, they do take certain chemical foods from the land, and that naturally these must be renewed in some form, or smaller and less fruit will result. I remember reading an article which dealt with the actual losses sustained by the soil as the result of cropping, and that the experiment made showed the amount of mineral matter extracted by the various fruit trees and bushes.

To quote only two or three of these, it was found that a ton of apples extracts 9 lbs., cherries 15, plums 13, gooseberries and raspberries 11 lbs., and by the process employed, to arrive at these figures, it was also possible to discover the precise nature of the various chemicals used up by the trees.

Now when we start manuring and come to the actual question of exactly what to use for our own trees, we arrive at a stage which is covered by my expression, "certainly a little puzzling," more

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UTILITY DUCK CLUB NOTES *Continued.*

which carry on laying right through July and into August, and because I like watching the future dams of my flock it is always a source of worry to me if for any reason it is impossible to do the trap-nests for a day or two myself, hence the failure to find in this part of the year an "off season."

so if we are trying to advise others what to do in a general way and under average conditions.

To begin with, take the enormous differences in the nature of soils in one large orchard or one district, let alone the great variations where it may be heavy or light, chalky, clay, sandy, or good loam, or again varying combinations of these.

In spite of this, we know that in proportion as our trees are giving good crops they will all require more or less of Nitrogen, Phosphates, Potash and Lime, and that it should be given either by chemicals or farmyard manure. Here it seems undoubtedly best to supply this by a combination of the two, and I find that most growers prefer this system.

In passing I should like to add that in the same article dealing with what the fruit trees extracted from the soil, it also gave what was considered to be the most effective and most economical specific manure to use for certain trees. I will quote just a few. Taking apples first: This it stated was most benefited by super-phosphate of lime and kainite, usually two parts of the former to one or two parts of the latter, with a fourth part of sulphate of iron. Pears, by super-phosphate one part, kainite four parts, with iron sulphate one-eighth part. Plums, two five and one-fourth respectively, and currants and gooseberries, one part each of super-phosphates and iron sulphate, with two parts of nitrate of soda in addition, and applied in spring.

If sulphate of potash is used instead of kainite it requires only one-quarter of the amount of the latter. The price being more, it comes to the same thing.

The poultry-keeper will be thinking, as he reads all this, where does our manure come in? So, as it would make this article too long, I must mention that in the "continued in our next" on manuring for fruit buds.

CANNIBALISM.

To the Editor of "Eggs."

Dear Sir,—I was much interested in your article on Cannibalism in a recent issue of "Eggs," as I had seen two cases this year. The first was among chicks of five to six weeks old which I had as day-olds procured for a market gardener living in this part. He told me that for a week he had been losing a chick a day, just the head and legs were left, so he thought it was a rat.

However, one day he was near the run, and he saw the whole lot, about 50, suddenly attack a chick and tear it in pieces before his eyes. In a tub standing by was a lot of slaughterhouse offal he had just brought in to boil down for his pigs, so he picked up, without thought, a cow's udder and put it in the run, and he said the chicks simply fell upon it and gorged themselves, and never after that did he lose another chick from cannibalism.

The second case was different, and among a fine collection of Rhode Island pullets just commencing to lay, it was prolapsus of the oviduct, and he lost half a dozen, which had been completely disembowled by the rest before he mentioned it to me. These birds had been chiefly fed on grain, a very large part of which was whole maize, so I suggested that he should cut out all corn feeds entirely, and feed only twice a day on a wet mash of middlings, which he should continue for some weeks, and that afterwards the chief feed should be mash made after your prescription, and no maize unless it was kibbled should be given, and certainly not as the sole grain feed. The result of the change in the manner of feeding caused the trouble to cease, and he lost no more.

Yours faithfully, H. W. BUSH.

UTILITY POULTRY SHOWS.

To the Editor of "Eggs."

Dear Sir,—Seeing in last week's "Eggs" your comments on Mr. Powell Owen's publication "The Complete Poultry Book," and noticing that the writer of the book makes the assertion that he was the pioneer of the Utility Shows, I should like to ask him if he can produce a schedule and catalogue of an **open** utility show of an earlier date than the two I am sending you, which are dated January 15th, 1916?

The Tyldesley Society claim to be the first Society to run an **open** utility show, which was organised for the benefit of the East Lancashire Red Cross Hospital, and proved a big success.

The judge was Mr. George E. Dixon, who managed the Northern Utility Society's Laying Competition at Burnley at the time, and he judged all the utility classes by the now well-known system of handling. Although none of the officials of the Society knew how the birds would be judged when they organised the utility classes, but they thought that something ought to be done to rouse some interest in utility, as it was practically a crime to keep exhibition birds at that time.

Mr. Dixon also gave a lecture a few weeks after the show to the members of the Tyldesley Society on "The Selection of the Layers by Handling," and I consider that Mr. Dixon did more for the creating of interest in the utility hen, when he judged this show by the Hogan system of selection than a great many people realise.

The information that he gave to the members of this Society was radiated to a good many othe societies in the North, and a new interest seemed to spring up wherever utility poultry was kept I know for a fact that a good number of our leading utility judges in Lancashire had never heard of the system of handling until they came in contact with the members of this Society. Let us give a bit of credit where it is due.

Trusting I am not trespassing on your space too much. I remain,

Yours faithfully, J. DAWSON.

THE
Harper-Adams Conference.

The Eighth Annual Poultry Conference at the Harper Adams College, like its predecessors, was very successful and very enjoyable. A very kindly welcome was extended to all of us by Principal Dr. Crowther, and it was a great pleasure to every one present to see him restored to health after his recent serious illness.

Proceedings opened on Wednesday afternoon, when Mr. Meekings and myself started the discussion on Wet v. Dry Mash Feeding. Mr. Meekings in his really excellent paper took the side of the wet mash. He said he had used wet mash, then turned to dry, and now he was a wet masher again, and he was convinced that his stock was the better for it. I think we were, all of us, a little surprised then, when he had finished, to find that he was not exactly feeding wet mash—in fact, he was feeding dry mash, supplemented with one ounce of the dry mash moistened with cold water. If I have made any mistake here I know he will forgive me and correct me. But when I speak of wet mash feeding I have always meant a cooked mash, or one scalded with boiling water and allowed to stand for an hour covered up, in order that the heat will cause the starch granules to swell and rupture the indigestible cellulose envelope.

My own arguments are so well known to my readers that I will not inflict them on you here. I quoted the South African Government Test, which proved the dry mash to be in all respects superior to wet, and at the same time warned my audience not to attach too much importance to it, as I was convinced that the mere fact that one ration was fed wet and one dry would not explain the wide difference, showed that protein was less digestible when cooked, and the carbo-hydrates more so, therefore to be consistent the grain should be cooked and the mash fed dry. I am very sorry that in none of the arguments used against me was this point taken up, as it has a most important bearing on the whole question. I also gave several examples of success with dry mash, both as regards incubation, hatchability, rearability, production, and early maturity.

Mr. G. Palmer disagreed with dry mash entirely. He admitted that never in his life had he tested it; he was satisfied with his own methods, and also stated that he was satisfied that the wet mash was superior because of his observation on the various farms in the country. He decried the S. African test because of the climatic conditions.

Well, I have tried both systems, and I entirely disagree with Mr. Palmer. I, too, see hundreds of poultry farms in the course of a year, and, as I said in summing up my paper, that, given two equally good feeders working under the same conditions, the result at the end of the year would not be materially different.

I must, in fairness to Mr. Palmer, mention that he spoke of a hen which laid over 1,000 eggs in five years, and was still healthy and well in her sixth, and had produced some wonderful daughters. Whether he attributed the record to wet mash I cannot say, but I will tell him of a hen which laid over 1,000 eggs in five years, bred by Dr. Baldwin, subsequently owned by the Revd. A. R. Runnells Moss, fed entirely on dry mash. I do not know what her daughters did, but I am sure the records could be obtained. Regarding differences in climate affecting a test between wet and dry, there is no climate the whole world over more favourable to poultry-keeping than our own. I would not let that weigh with me a penny piece in a question of this kind.

Mr. C. N. Goode said he had tried both wet and dry, and done much better on wet. Mr. Stanley Street-Porter said he had found that on dry mash the birds went to roost with empty crops, but he admitted that he gave the whole of the grain feed in the morning. Mr. Welford said he had tried dry mash feeding for a twelve months, and he could not see the least difference. In the spring I published a letter from Mr. Welford, in which he said that his losses in rearing had been less than 5 per cent.

Miss Bell asked a pertinent question as to size, drawing attention to size attained by exhibition breeders and how seldom they use wet mash. In answer to this question, it should be remembered that the upper limits of an animal's growth are determined by inheritance, the food will be the most important influence, but it is not the determining influence. The exhibition breeder in order to get size selects the slowest birds to mature, he does all he can to retard maturity, and by continually breeding from slow maturing birds he maintains it. It is this basis of selection that makes the average exhibition fowl such a poor layer, as so often said before, high fecundity is correlated with early maturity.

Miss Maddison said she had reared a number of birds on wet and dry mash, if anything the dry mash birds had done better, but she thought they would moult earlier.

Capt. Rice pointed out that I had omitted all mention of disease. He said there was greater risk of infection with B.W.D. and Coccidiosis with dry mash. Having elicited from him the fact, which I already knew, that infection was through the excreta, I pointed out to him that it was easy to construct a dry mash hopper in which the food could not be fouled. Capt. Rice appeared to misunderstand my answer, for when he read his paper next day he said that "Mr. Newman said that he can produce a dry mash hopper which would prevent disease, and he would confer a great benefit on the industry if he would publish the design." I asked to be allowed to correct this statement, but Capt. Rice did not appear to understand then what I meant. I understand that with B.W.D. the risk of infection is greatest during the first four days. I never feed dry mash until after the sixth day. Further, most wet mash feeders begin with a feed on a board, or in open troughs, so that the danger of infection must be greater in their case. There is also what is really the greatest danger of all, the throwing of dry chick feed on the ground, and feeding it in the same place every day, as this every practical poultry feeder knows is freely mixed in the excreta. The same argument would apply to coccidiosis.

Captain Rice spoke, too, of the danger of infection through the mash hoppers with roup and kindred diseases. He is right; there is a great risk, and I have frequently advised that the hopper should be removed if an outbreak of roup occurs. But the fact remains that there is no evidence that infectious disease is greater with dry mash than wet. In wet mash feeding it is true the mash is cleared up, but it often adheres to the side or bottom of the trough, and dries there. I have seen hens hours after the mash has been fed, pecking the dried mash from the side. The troughs are not removed. It is unnecessary here to mention the fact that in all our laying tests, where wet mash is fed, that outbreaks of roup are of fairly common occurrence, as one would expect when birds are drawn from so many sources, and in spite of the fact that they are kept in small flocks. It is certain that with larger flocks the risk would be much greater. Every possible precaution is taken. I want to make it clear that I am not suggesting the wet mash has anything to do with an outbreak of roup. I am sure Capt. Rice is aware that the greatest danger of infection from roup is when the birds are on the perch.

That concluded an interesting discussion. Those who took a view opposite to my own were inclined to attribute results quoted to the fact that the birds were wet mash fed. I particularly pointed out that in the records I gave that I did not attribute the results to dry mash feeding. There was one other point, too, which was ignored by everybody—the question of cooking the grain as against the mash, the point of greater digestibility nobody mentioned. There were definite assertions that wet mash was better than dry, but no one gave comparative records, or had any to give. The argument which, I think, was the strongest related to the quantity of the food the birds could consume. I agree with what Dr. Crowther said at the finish that if an experiment were made, there would be nothing between the two systems at the finish.

After tea we had a most interesting and useful paper on "The Value of Poultry on the Fruit Farm." Mr. Jones is one of the largest growers of fruit in this country, and if I may offer a little advice it is that all my readers should get the report of the proceedings from the College when it is published. This paper alone will be worth the money to anyone who is interested in fruit. He recommended heavy breeds to fruit farmers. What was lost by not running poultry, he said, was almost incredible. To begin with, if they had no fowls on the land, they had to manure heavily, spray three or four times a year, and grease band. He kept fowls in pens about two chains each, double runs, the birds using the runs alternately for fortnightly periods. The average profit per head was 7s. a year. He got better and cleaner fruit, and more of it. Spraying causes severe losses because it poisons both friends and enemies. Bees and birds, their great friends, were poisoned because of poisoned insect life. They must get back to natural conditions. Mind your crop for one month of the year, and the crows will mind it for eleven months. Chaffinches and tits were the best friend they had. The results with poultry were really wonderful. Comparing two orchards, the one with poultry, and the other without, the poultry had given him £300 worth more plums, that is 300 birds. On a seven acre plot he had £50 worth more fruit per acre than where they had no poultry. It was not necessary to clear the land. In answer to a question, Mr. Jones said that good poultry manure was worth £20 per ton to the fruit grower, and suggested that it would be a good plan if poultry-keepers were to co-operate and preserve the manure properly, as individuals did not have enough to sell. There was a most interesting discussion at the finish of Mr. Jones's paper.

In the evening we had an address by Mr. P. A. Francis on "American and Canadian Poultry Plants." This was illustrated by lantern slides. It was a very interesting and enjoyable address, as one expects from Mr. Francis. One picture particularly interested us all. It was a group of healthy vigorous chicks, bred from stock which had re-acted to the blood agglutination test for B.W.D. This made one think seriously, especially in view of what Mr. Dalling had to say on the subject of B.W.D. next day. It would appear that a large number of birds which re-act to this test will not necessarily breed infected stock. The question then is: Are we not sacrificing a large number of valuable birds? There seems to be an enormous amount of research work yet to be done before we can hope for relief from the scourge of B.W.D.

Station Cottages, Northiam, Sussex.
1-11-23.

Dear Mr. Newman,—I would like to say how much "Eggs" is appreciated here, and the sound principles governing it. We members feel that we have "a straight deal," and a genuinely helping hand. It is a point of no small importnce, for instance, to feel that advertisements of quack and useless goods and stock are not accepted.

Then, the feeding and housing advice is unequalled and reliable. So to you and your staff our hearty thanks.

With my best thanks,

Yours sincerely,
(Signed) E. A. PAINE.

Cumrew, Heads Hook, Carlisle.
21st June, 1924.

Dear Sir,—In conclusion, may I take this opportunity of expressing my appreciation of "Eggs" with hearty congratulations to the Editor.

Yours faithfully,
(Signed) J. T. POYNTER.

Market Report.

THE MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 8th AUGUST, 1924.

GRAIN AND FEEDING STUFFS.—Prices of imported wheat remain very firm and where altered are again higher, No. 1 Manitoba averaging 14s. 10d. and Argentine 13s. 5d. per cwt. as compared with 14s. 5d. and 13s. 1d. last week; the high prices tend to restrict business, however. Imported barley also shows a further slight increase, and a fair volume of business is reported at the advance; Karachi barley averages 11s. 6d. per cwt., a rise of 1d. on the week. Imported oats and maize are both distinctly dearer, No. 2 Canada Western oats averaging 10s. 6d. per cwt. and Argentine maize 9s. 3d. per cwt. against 10s. 2d. and 9s. respectively last week.

Milling offals meet a good demand and the recent advance is well maintained for both bran and middlings. Meals generally show a continued hardening tendency, barley meal now averaging £12 16s. per ton and maize meal about £10 10s. per ton. Most descriptions of oilcakes are also dearer, although the high prices are affecting the demand, especially for linseed cake. Dried ale grains show a decided advance in London.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s; Hull, £6 17s; Liverpool, £8; London, £7 2s. Broad Bran: Hull, £7 17s; London, £8 2s. Middlings: Coarse (British): Bristol, £10 10s; Hull, £10; Liverpool, £9 15s; London, £9 12s. Pollards (Imported): Bristol, £9; Hull, £7 15s; Liverpool, £7 17s. Rice Bran: Bristol, £8 5s; Liverpool, £8 5s. MEAL.—Barley Meal: Bristol, £13; Hull, £12 12s; London, £12 15s. Maize Meal: Bristol, £10 17s; Hull, £10 2s; Liverpool, £10 5s; London, £10 15s. Maize Germ Meal: Bristol, £10 15s; Hull, £10 10s; London, £10 5s. Maize Gluten Feed: Bristol, £11; London, £9 12s.

EGGS AND DEAD POULTRY.

There is an improved market for eggs, and, in consequence of somewhat short supplies, all descriptions sell at higher figures. Poultry is not in much demand, and fowls and ducks are approximately 1d. per lb. cheaper than last week.

Week-end Prices—Eggs (per 120): British, 18s 6d, 17s 6d; Irish, 16s 9d, 16s 0d; Danish, 19s 0d, 16s 9d; Dutch, 19s 6d, 17s 3d; Russian, 12s 0d, 10s 0d; Belgian, 17s 0d, 16s 0d; Italian, 17s 0d, 15s 0d; Lithuanian, 15s 0d, 11s 0d; Chinese, 13s 0d, 12s 6d.

Dead Poultry (per lb.): Fowls—Surrey, 2s 2d, 1s 8d; Irish, 1s 6d, 1s 0d; Others, 1s 10d, 1s 3d. Ducks, 1s 2d, 8d. Geese, 1s 0d, 8d.

EGGS.

Per Doz.—Ashford: First, 2s 4d; Second, 1s 11d. Birmingham: First, 1s 9½d; Second, 1s 8½d. Bridgwater: First, 1s 11d; Second, 1s 8d. Carlisle: First, 1s 11d. Chelmsford: First, 2s 2½d; Second, 1s 11½d. Denbigh: First 1s 10d; Second, 1s 9d. Derby: First, 1s 8d. Dorchester: First, 1s 10½d. Exeter: First, 2s 0d. Hereford: First, 1s 7d. Ipswich: First, 2s 0d; Second, 1s 10d. King's Lynn: First, 1s 9d; Second, 1s 8d. Lincoln: First, 1s 8d. Llandilo: First, 1s 8d; Second, 1s 7d. Newport (Mon.): First, 1s 10d; Second, 1s 9d. Norwich: First, 1s 11d. Oswestry: First, 1s 9d. Penzance: First, 1s 8d; Second, 1s 7d. Salisbury: First, 1s 11½d; Second, 1s 10d. Shrewsbury: First, 1s 10d; Second, 1s 9d. Skipton: First, 1s 7d. Truro: First, 1s 7d; Second, 1s 6d. York: First, 1s 11d; Second, 1s 10d.

FOWLS.

Per lb.—Birmingham: First, 1s 6d; Second, 9d. Derby: First, *5s 9d; Second, *3s 3d. Exeter: First, 1s 9d. Hereford: First, 1s 6d. Ipswich: First, 1s 10d. Lincoln: First, *5s 0d; Second, *3s 6d. Llandilo: First, 1s 9d; Second, 1s 7d. Newport (Mon.): First, 1s 10d; Second, 1s 7d. Shrewsbury: First, 1s 6d; Second, 1s 3d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 3d; Second, 1s 0d. Derby: First, *6s 0d; Second, *4s 6d. Exeter: First, 1s 4d. Hereford: First, 1s 4d; Second, 1s 3d. Llandilo: First, 1s 9d; Second, 1s 7d. Newport (Mon.): First, 1s 6d.

* Per Head.

“ Eggs”

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 13th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of “ Eggs ” to their poultry-keeping friends.

Subscriptions to “ EGGS,” 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, “ Eggs,” 94, Farncombe Street, London, S.E.16. Telephone : HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of “ Eggs,” it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

POST-MORTEMS.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS „ „ 1s.
DAY-OLD CHICKS „ „ 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 „ „ „ 4
9 „ „ „ 6
13 „ „ „ 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office **FIRST POST FRIDAYS** for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

Ten Choice White Leghorn Pullets, Barron's 268 strain; make splendid winter layers; 70s.—Kennett, Boxted, Colchester.

Light Sussex, Phillips: White Leghorn, Snowden; 1924 Pullets and Cockerels; 1922 Hens and Cocks. Price list free.—Barrowmore, 4, Great Barrow, Chester.

Light Sussex (Leigh-Rothschild), White Bresse (Hollams-Syng), from healthy good winter layers; January-February hatched; 15s. each. — Linkenholt Poultry Farm, Copthorne, Crawley, Sussex.

10 LIGHT SUSSEX PULLETS

(March, 1924), bred from actual winners, National Laying Test, 1921/22, mated high record; Adams' Cockerel; 15s. each. February Cockerels, same breeding; 21s. each. Also a few

MARCH BARNEVELDER PULLETS,

20s. each. Cockerels, from 8s. 6d.

STONESTILE FARM,
CHARING, KENT.

Get the moult over quickly

Pay the right attention to your flock now—that is, feed them Ful-O-Pep way—and your winter profit is assured. Ful-O-Pep, too, means a *quick* moult. It is so nourishing, so easily digested, so well balanced that it gives the *extra* nourishment necessary to quick feathering.

Ful-O-Pep cuts out all trouble, too. Just tip the Mash—half Growing, half Laying Mash—straight from the bag to the hopper, several days' supply at a time. The only other thing you must do is to give a mixed grain feed—one handful per bird—one hour before roosting time.

The quick moult means quick profit. By helping the one, Ful-O-Pep makes sure of the other.

To make sure of a quick moult, read "What to do in August" in the Ful-O-Pep Monthly Guide, sent FREE. The Guide has illustration and full details of the All-age Self-Feeder.

FUL-O-PEP
TRADE MARK
GROWING MASH
AND LAYING MASH.

NO HEATING WATER: NO TROUBLE

Tip several days' supply straight from bag to hopper. Give one mixed grain feed daily. Sold only in sealed bags. When buying Ful-O-Pep always look for our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag.

Guaranteed by Quaker Oats Ltd., 11, Finsbury Sq., E.C.2

PULLETS.

FOR SALE.

1924 Light Sussex, White Wyandottes, Exchequer Leghorns; five, four and three months; 15s., 12s. 6d., 10s. each; carriage paid. January hatched Light Sussex Cockerels; splendidly marked; £1 1s. each. 1923 Pullets, in each of the three breeds; 7s. 6d. each. All magnificent layers.—Major and Mrs. Everett, Castlemer, Kingston, Lewes.

Black Minorca Pullets and Cockerels, from Gold Medal Winners; 10s. 6d., 15s. 6d. each. Also White Wyandottes and Rhode Island Reds.—P. Turnill, Market Deeping.

Exchequer Leghorn Pullets and Cockerels for Sale, bred from 2nd Crystal Palace Hen and Reserve, Crystal Palace and 1st and Silver Medal Bath and West cock. Price 15s. and £1 1s. each.—Innes, Brean Cottage, West Monkton, Taunton.

Black Leghorns. Needing the room have about 30 Black Leghorn Hens, 10s. 6d. each and some 1924 Cockerels, 10s. 6d. each, for Sale.—Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites, 1923 and 1924 Pullets and Cockerels of this new and excellent breed for Sale, bred from Winners two 1sts and Silver Medal, Bath and West, 2nd and 3rd Leicester, Birmingham, Crystal Palace, Reserve Olympia, H.C. Dairy. Prices, from £1 1s. each.—Innes, Brean Cottage, West Monkton Taunton.

50 Pullets, Anconas, Wyandottes, R.I.R., hatched May 10th, 1924, 4s. each, carriage paid; approval.—Livingston, Cope Bank Poultry Farm, Bolton, Lancs.

Capt. Crawshay, F.B.S.A., offers Light Sussex, standard type, size, stamina; winter layers, eggs 2⅛-2½ ozs.; Laying Test 1⅞-2 ozs. Neither meet Dutchman nor Dane filling the egg cup nor produce the Sussex Fowl. 1924 stock; exceptionally fine. 1923 Special Breeding Stock. Grass and wood range.—Doward Crest, Symonds Yat.

Australorps. Pullets and Cockerels, four months old, good birds, from 7s. 6d. each. 1923 White Wyandotte and Light Sussex Cockerels, 10s. 6d. each. — Mrs. Munday, Mersham, Kent.

W. CRABTREE

can supply immediately 1922 W. Leghorns and W. Wyandottes at 5s. each; 1923 Pullets at 6s., 10s., and 15s. each; and six months old pullets for August to October delivery at 15s., 20s., and 30s. each; 2s. 6d. per bird deposit with order, all carriage paid and crates free. I have seven pens (56 birds) in the first four positions in the principal laying trials. — Twiston, Near Clitheroe, Lancashire.

A MORE ECONOMIC BREED,
THE BLACK BRESSE.

We are Specialists of this valuable breed, the best for the table and laying capacity. For three years it won the first prize at the laying competition of the Vaulx de Cernay (France). We had first prize at Epernay, Marne, for beauty and utility. April pullets, 12s. 6d.; lots of 50, 10s. 6d. each. Carriage paid to French port (Dieppe). All stock reared on free range, bred and fed on Tom Newman's formula.

ELEVAGE MOULIN DE FISMETTES,
JEAN MOLLE, FISMES (MARNE),
FRANCE.

Member of S.P.B.A., and Bresse Club of France.

EG

Wednesday, August 20th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. X. No. 8. Copyright.

Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months Post Free 12/8
Six Months „ „ 6/4
Three Months „ „ 3/3

White Runner Drake

"White Wanderer" Son of a duck who laid 263 eggs in first year—He is heading "Extra Special Pen"

My White Runners

are well known as heavy layers. If you want a Breeding Pen, come and choose one from my "Many Egg" strain flock. They are a beautiful sight, ideally housed and have acres of range.

I have some 1923 ducks at **18/-** each, 1924 ducks at **20/-** and **25/-** each, and 1924 drakes at **10/-**, **15/-** and **20/-** each.

Write for my Price Lists of—

White Leghorns,
Light Sussex,
Buff Rocks,
Khaki Campbell Ducks.

MISS HARRISON BELL,
WELWYN——HERTS

The WHITE HOUSE POULTRY FARM

ST. NEOTS, —— HUNTS.

House and Appliance Department.

WE have for disposal 17, 8′ × 8′ Houses, new and second-hand, (some have only had a few weeks' use) for rearing chickens, fitted with our Patent Ventilating Screen, ¾″ bds. and all planed studding on floors with joists and runners, and Ruberoid roofing.

The Seal of Quality

THE WHITE HOUSE

and Distinction.

Price New £12 12s. each
Second-hand £10 10s. each
Carriage paid nearest Station.

Order now for early delivery
The House that appeals to all Poultry Keepers.

POULTRY FOODS
Quality Guaranteed

	per cwt. s.	d.
Complete Laying Meal	16	6
Mixed Poultry Corn (Specially Cleaned)	13	0
Clover Meal	13	6
Meat Meal	17	6
Sussex Ground Oats (95 per cent.)	15	0
Pure Barley Meal	13	0
Pea Meal	14	6
Kibbled Round Corn (Sifted)	12	6
Flint Grit (Three Sizes)	7	3
Oyster Shell	7	6
Alfalfa Meal	16	6
Maize Meal	13	0
No. 1 Chick Grain (First Feed)	18	0
No. 2 Chick Grain (Second Feed)	16	6
Chick Rearing Meal	16	6
Meat and Bone Meal	16	0
Bone Meal	15	0

Etc., Etc., Etc.

Free on Rail, Hanley. Sacks Free.

CASH WITH ORDER.

Special Quotations for Ton Lots and over, Free on Rails.

Enquiries solicited.

Established 1878. TEL.: Hanley 874.

DICKSONS,

(M.S.P.B.A.),

Corn Merchants and Poultry Food Specialists,

FAR GREEN, HANLEY, STAFFS.

DRIED YEAST per cwt. 22/-

Guaranteed Pure Unextracted!
Richest in "B" Vitamines! !
Richest in Proteins! ! ! ! !
The Healthiest Poultry Food Extant!

YESTOS Per cwt. 22/-

("Ossified Yeast").

(Containing "A" and "B" Vitamines).

	Per cwt.
Dried Grains	12/-
Ground Malt Culms ..	9/-
Maize Meal	16/-
Barley Meal	16/6
Pig Meal	14/-
Complete Poultry Meal	16/-
Mixed Corn	16/-
Kibbled Maize	16/-
Sussex Ground Oats .. (Pure Oats. No admixture whatever.)	18/-
Chick Feed. No. 1 ..	19/-
" " No. 2 ..	18/-
Chicken Meal	16/-

All the above prices Carriage Paid to nearest station, England and Wales.

Guaranteed of the Best Ingredients. — A Trial Invited.

CASH WITH ORDER.

For orders of one ton and over, special price, free on rail, Burton-on-Trent.

5 per cent. discount allowed to Members of the S.P.B.A. if ordered through the Association. For Samples and further information apply to :—

The English Grains Co., Ltd.,

Derby Road,

BURTON - ON - TRENT.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 20th, 1924.

Editorial.

THE HARPER ADAMS' CONFERENCE.

(Continued.)

Thursday morning's discussion opened on the "Marketing of Table Poultry." Mr. Juniper, in his remarks, said that to get the best prices it was always wise to send the whole of one's produce to one firm. What the wholesaler seeks is constancy of supply, attractive quality, well graded, good packing. For the best quality there is always a constant demand. The highest prices were realised by the crammed fowl, which is generally known as the "Surrey Fowl." Then followed the trough-fed chicken. He concluded by giving statistics of the poultry and game which passes through the Central Market. Much that Mr. Juniper said has already been said in Mr. Clarkson's valuable articles on "Marketing," which appeared in these columns recently.

Mr. Grant, who followed, said the producer's point of view was to make as much money as possible with as little trouble as possible. People who were taken up with egg production often showed a lack of knowledge of marketing requirements. Usually they have the wrong type of bird for the market, and they often forget that prices may vary from 1s. 4d. to 2s. 4d. per lb., and they grumble if they don't get the higher price. An effort should be made to produce the type of bird the salesman can handle. He preferred to send to the salesman who will give the nett price rather than to one who charged 5 per cent. commission. The statement that the Surrey chickens which were sent from the Eastern Counties did not realise prices so high as those from Sussex could not be substantiated. It was not recognised that the production of table poultry was a highly skilled business. Table poultry marketing began with the mating of the birds. Fatteners objected to buy chicks which had been dry fed, but there was no objection to that when they attained maturity.

(It should be mentioned here that this question was asked us on the first evening, the point being that there did not seem to be such an expansion of crop with the dry fed birds. Mr. Grant confirmed this.) Mention was made of the rings in the country markets. As to caponising, it was stated that the demand for heavy capons was a limited one.

Before proceeding with the next item on the programme, Dr. Crowther remarked what a pleasure it was to see Mr. P. Hedworth Foulkes with them again. Mr. Foulkes had inaugurated these conferences, and their success had been due to him. He then asked him to take the chair for the next discussion. Mr. Foulkes was given a very hearty reception.

Mr. Newberry then read a very excellent paper on "The Marketing of Eggs." He said that marketing was only one side of the business—the other is production; and they are so dependent the one on the other, that the one cannot profitably exist without the other. When we have produced, the next—and, he submitted, the more important matter—is to dispose of the produce to the best advantage, and he dealt with these under two headings:—(1) Collection and (2) Distribution.

COLLECTION.

Mr. Newberry drew attention to the urgent need for organisation. If the commercial egg farmers were omitted, who are able to market for themselves to the best advantage, probably 70 to 80 per cent. of the nation's output is produced by general farmers, smallholders, and backyarders; a small proportion of these find local retail markets, the great majority are dependent on higglers and dealers who pay inferior prices. These add to the number of middlemen who take a profit.

The crux of the problem from both producers' and consumers' point of view is to eliminate as far as possible the laying of the egg in the nest and its being laid on the table. Certain parts of Wales and S.W. England received during the glut season as much as 20 to 25 per cent. eggs below the average price of other parts of the country. All this pointed to the great need of establishing a better system of collecting centres throughout all the productive centres.

DISTRIBUTION.

He would mention four channels through which the egg reached the consumer:—(1) From individual producer direct to consumer. This accounts for comparatively few, but there is reason to believe that numbers are increasing. (2) Through the medium of local tradesmen. This method reduces to a large extent the overhead charges, because the farmer takes his eggs when going to market or the tradesmen collects when delivering his goods. From observation he thought the producer, if he kept strict accounts, would not be satisfied, as the business was generally a system of barter. (3) Sales at local markets. This method appeared to be on the increase, and was a great asset to small producers. On the other hand, considerable harm is done to both producers and consumers because so many stale and bad eggs were mixed with a few fresh. (4) The last method he proposed to mention was that of the Co-operative Societies, where business is directed from the head office. He had experience with two. The Framlingham and British Egg Producers. He had come to the conclusion that the industrial societies, if not all that could be desired, were a tremendous asset in the life of the nation.

ORGANISATION ESSENTIAL.

If the poultry industry had behind it an organisation to look after its interests similar to that which the Co-operative Wholesale Society holds to the Industrial Retail Societies, it would be infinitely better off. Mr. Newberry then proceeded to discuss the relative merits of a Co-operative Society and a Limited Liability Co. He thought that the latter would probably outweigh any advantages offered by the former, as the members would hold a financial interest in the business. In conclusion, he emphasised that, though co-operation is the keynote, success depends ultimately on the individual. An interesting discussion followed.

Major Day, who followed, gave his experience with marketing eggs, which was entirely connected with the Stamford Co-operative Society. The staff in 1916 consisted of one man and a pony trap, now they had three motor cars and a staff of three. Out of 1¼ million eggs handled, 2,300 were thrown away as bad. Before the society was started, shopkeepers wanted 20 to 25 per cent. profit, now they were content with 12 to 14 per cent., and came to them for eggs. Mr. Hewett, of the C.W.S., said that he was now handling half a million eggs weekly; they had taken 1½ million preserved eggs from one society and sold them in three weeks. If they had more English eggs they could oust the Danish, which they desired to do. The C.W.S. will always help to distribute if there should be any glut.

THE PREVENTION OF DISEASE.

Capt. Rice, F.R.C.V.S., said that poultry suffered more from disease than any other animal, and the best insurance against disease is healthy birds and management. He spoke of the constant trade in quack remedies. Speaking on internal antiseptics he mentioned corrosive sublimate, which had been much used without success. Birds were more susceptible to cumulative poisoning than any other animal, and many outbreaks of B.W.D. have been increased by its use. He thought that permanganate of potash was of very little value to the poultry-keeper. Vaccines and serums will play an important part in the campaign against disease. They cannot play the whole part, but they **may be** a useful adjunct. Speaking of the agglutination test he said 85 per cent. of a flock will re-act to the test. He had bred in a small way from re-actors, and had been surprised at the low mortality; parent birds had not re-acted in their second year. Speaking of the weakening influences he referred first to high egg production as the root of disease, and mentioned more particularly the case of ducks. Birds which had been comparatively free from disease were now showing very greatly increased signs of it. We should be more moderate in our demands upon our stock.

There was a possibility of breeding birds immune from disease. The production of immune strains at least on a laboratory scale is not impossible. He spoke strongly against large flocks, and the penalties of mass production were generally attributable to large units. Houses should only be to protect the birds, not to keep them warm. Disinfection without preliminary cleaning was of very little use. He could not too strongly condemn the practise of the use of manure pits. It could not be countenanced. Feeding grain in the litter was quite unsound.

There was no doubt faulty feeding, and it would be a great day when we were able to arrive at the properly balanced ration. He considered dry mash feeding unsound, and likely to be a source of infection. He spoke of losses incurred through disease by birds at laying tests and shows.

Mr. Dalling, M.R.C.V.S., gave a most interesting paper on Baccillary White Diarrhoea. He said that some adult birds may acquire the disease in its infectious form. The only reliable way of diagnosing B.W.D. was by the recovery of the causal organism from the chick. They were fairly safe after the chicks had reached four days old as they were not susceptible to infection after that time. The first infection was through the egg. A hen may lay normal eggs and then infected eggs. He stated that the litter may contain infection for a month. Carrier hens may infect other normal hens, but that needed further investigation. It was possible that the male bird might carry the infection. Rettger's work shows some chance of it being so, and he could not say definitely whether a hen could liberate infection save from the ovary.

He condemned the practise of feeding eggs whether boiled or not to chicks. Even boiling contaminated eggs hard may not destroy the baccillus, and there was great danger in feeding eggs which had been incubated seven days and which were infected. The only known means of ascertaining whether adult stock were carriers were mainly laboratory tests. He spoke of the agglutination test, and remarked on the fact that healthy stock had been bred from birds which re-acted. As a means of prevention they should kill any visibly affected chicks—it was useless to treat them—and remove any dead chicks at once, and not pick them up and put them on one side. The first cases of disease were the most important, and the chicks should be watched carefully for the first six days. Chicks were not susceptible to infection so much after the fourth day. There was very little risk after the sixth day. The risk from contaminated food was not to be compared with the risk of infection from one chick to another. Incubators should

(Continued at Foot of Column on Next Page).

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

EGGS BY WEIGHT.

In reference to above, Capt. A. L. Hunt writes to say that "Co-operative Poultry Products, Ltd.," is undertaking the grading of eggs on behalf of the producer. It is quite useless for one man to grade his eggs and expect to get a higher price for them under the auctioneer's hammer. The Society will sell guaranteed graded eggs under a central control, and a better price for the producer under these conditions is assured. Capt. Hunt also asks me to inform "Beginner" that a Society has been registered at Churt for the purpose of buying foodstuffs collectively, and that full particulars can be obtained from him at Churt, which is two miles from Headley, of both these co-operative societies, either by letter or by a personal call. Capt. Hunt also suggests that Mr. F. L. Kelly should get into touch with Co-operative Poultry Products, Ltd., at Virginia Water.

DISEASE.

The papers read by Capt. Rice on the "Prevention of Disease" and on "Bacillary White Diarrhoea," by Mr. Dalling, were extremely interesting and important. In reference to B.W.D., Capt. Rice told us that with the blood agglutination test 85 per cent. of the flock will re-act to the test; he had bred in a small way from re-actors and had been surprised at the low mortality. The parent birds had not re-acted in their second year. It has been suggested that if the test were made when the hen was not in lay it could not be relied on. I understood Capt. Rice to say that there was no association between laying and non-laying affecting the agglutination test. The question was asked whether it was possible that all chicks were carriers, and that environmental conditions which would tend to lower the chicks' resistant power would increase the activity of the baccilli. I could not quite gather from the answer what opinion the lecturers held. I have mentioned before that Mr. Francis exhibited a photograph of a large group of chickens which had been bred from birds which had re-acted to the agglutination test; the mortality had been very low, and the chicks were healthy and vigorous. This leaves us with rather a problem—if such a large percentage re-act, what is the explanation that healthy and vigorous chicks are bred from them? We understand that every egg is not infected, and there is some evidence, I believe, that the chicks from hens which are believed to be carriers have exhibited no signs of the disease in the early broods, but outbreaks have occurred with the later hatched. If it were possible to find out what percentage of the chicks were actually infected when hatched, and what percentage were infected after hatching, it would be helpful. I have not the slightest desire to revive the controversy on Vaccines and Serums, but there are one or two points which I am sure information would be valued not only by myself but by others. For example, there are several forms of roup. Would a different vaccine be necessary for each form? I ask the question because I have been assured by medical men that failure with vaccines against colds in humans has been due to the fact that there are so many forms of cold that no single vaccine has been discovered which is effective in every case. Also as an attack of diphtheretic roup does not confer immunity, the bird often having a bad attack, although not so severe as the first, months later, what degree of immunity is conferred by a vaccine? I was assured by a well-known poultryman the other day that he had found when killing birds which had suffered from diphtheretic roup, and had been cured—he always found white nodules on the thigh between the skin and the flesh. Does that show that the disease is latent, and is it ever advisable to breed from birds which have suffered from the disease? Perhaps someone will be able to supply the information.

THE DIVERSITY OF OPINION.

Although it would be a dreadfully uninteresting world if we all of us thought alike, and certainly not conducive of progress, I must admit that I was very much struck with the great diversity of opinion which was in evidence at the Harper Adams' Conference on almost every subject which was debated.

I need not refer to the debate on Wet v. Dry Mash, but let us take the question of Disease. On the one hand we have the scientific experts with their vaccines and serums, agglutination, and, may I add, with as acute differences of opinion among themselves as we merely practical people have among ourselves. (Please do not think I am trying to be sarcastic; no one values their work more highly than I do—I am only reflecting on the curious situation.)

Then we have Mr. G. Palmer, who cures every disease, including Tuberculosis, B.W.D., Coccidiosis, and many other diseases with carbolic acid, and my humble self, who dares to venture the

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EDITORIAL.—Continued.

be thoroughly cleaned and disinfected. On the question of the egg shell being a source of infection he was not in a position to speak definitely, but he advised that the egg should be wiped over with warm water.

Capt. Rice stated that there was no association between laying and non-laying affecting the agglutination test.

opinion that we are making a mistake in not making the real fight against disease at its source—that is to say, concentrate our attention on better methods of breeding, incubating, brooding, feeding, and housing. I am afraid that there are not many people who agree with me. Everyone appears to be looking to the laboratory for a solution of the disease problem. I would not for a moment write a word which would in any way detract from the valuable help which we have received, and shall receive from this quarter, but I still contend that the real fight with disease must be waged by the practical poultry-keeper, and it is the environment which is to be studied. If we do not sufficiently realise this fact, and put too much reliance in what the scientists can do for us in the laboratories, then we shall have a very rude awakening shortly.

WYE WINTER LAYING TEST.

I have been asked to say the particulars of the Wye College Four Months' Winter Laying Test are now ready, and can be obtained on application to the Secretary of the South-Eastern Agricultural College, Wye, Kent. Entries close on August 31st, and are limited to residents in the counties of Kent, Surrey and Sussex.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

Liverpool and District Branch.

A Winter Laying Test is to be held at Mr. B. O. Crosthwaite's, Uplands, West Derby. Three Classes: Light, Heavy, and Cross-bred Pullets. Last date for entries, 31st August, 1924.

Notice.—Will Members of the above Branch please notify at once (Hon. Sec.) what entry forms they require for the above test.

R. J. THOMAS, Hon. Sec.
9, Grey Road, Walton, Liverpool.

THE SIXTH MIDLAND LAYING TEST.

I am informed by Mr. A. H. Brain that the Sixth Midland Laying Test will commence on November 3rd. This test is conducted by the Midland Federation, under the personal supervision of Mr. Brain, and is run in a centre where the population is two millions, among which there are many thousands of enthusiastic poultry-keepers who take an interest in the test.

Mr. Brain claims that through the new anti-roup measures which are in force no loss through this disease is feared whatsoever, whether or not the birds which are sent from owners are slightly affected without their knowledge, or arrive with colds contracted on the journey, or become increasingly affected by being sent in hampers or baskets which have previously contained infected cases.

Entry forms may be obtained from the Head Office of the Midland Federation, 63, Old Meeting Street, West Bromwich.

THE MIDDLESEX LAYING TEST.

I have received the report of the Second Middlesex Laying Test for the first eight months. This test started on November 1st, 1923, and is for twelve lunar months.

"The type of bird this year, except in some cases of each breed, is not equal to last year, nor is the egg average, which more or less proves the former, and same is confirmed by the number of second-grade eggs."

The health of the birds has been fairly satisfactory, the stamina, being below normal, has entailed a lot of extra work. (The statement which follows, I think, requires further explanation):—"For the simple reason that in the ordinary course of events birds would be allowed out in all weather, but birds in-bred and reared under unnatural conditions, cannot stand weather as experienced in the early part of this year, plus winter egg-laying strain." What is exactly meant by the words, "birds in-bred and reared under unnatural conditions?" Perhaps Capt. Smith, the genial Secretary, will give us a little further information.

The birds have been fed as last year, i.e., grain in the early morning, green food and dry mash hoppers open at about ten o'clock, soft food about mid-day, or according to the season, and grain as the last feed at night.

Their report would have been of greater value had the average production in each breed been given.

The following are the leading six pens in each section:—

Light Breeds (Single Birds).—1, J. and A. Moore (B.L.), 154 pts.; 2, Roebuck and Illingworth (B.L.), 147 pts.; 3, J. A. Howarth (W.L.), 139 pts.; 4, Major Kingscote (Ancona), 135 pts.; 5, F. J. Betts (W.L.), 128 pts.; 6, R. A. and A. M. Johnson (W.L.), 118 pts.

Heavy Breeds (Single Birds).—1, Mr. and Mrs. E. H. Lade (R.I.R.), 157 pts.; 2, H. J. Veeger (L.S.), 156 pts.; 3, W. Measures (R.I.R.), 147 pts.; 4, Mrs. J. H. Drew (B.R.), 146 pts.; 5, A. Snowden (W.W.), 144 pts.; 6, Lady D. Fraser (R.I.R.), 144 pts.

Light Breeds (Pairs).—1, Davy and Son (B.L.), 231 pts.; 2, F. E. Tomlinson (W.L.), 220 pts.; 3, E. and W. A. Franey (W.L.), 221 pts.; 4. W. J. Grist (W.L.), 216 pts.; 5, V. J. Hitchings (W.L.), 214 pts.; 6, L. C. Turnill (Minoreas), 214 pts.

Heavy Breeds (Pairs).—1, Major G. T. Williams (R.I.R.), 298 pts.; 2, A. D. Prince (R.I.R.), 294 pts.; 3, W. Claughton Douglas (W.W.), 285 pts.; 4. P. E. White (B.R.), 282 pts.; 5, E. Bland (W.W.), 276 pts.; 6, J. Sykes (W.W.), 267 pts.

H. Winch leads in Cross Section with 140 eggs.

NORTHERN UTILITY POULTRY SOCIETY LAYING COMPETITION, 1923-24.

NINTH REPORT, JUNE 12th to JULY 9th, 1924.

The weather during this period has been cool, and, on the whole, pleasant, more fine days being experienced than wet; only two or three days have been summerlike.

As is usual at this time, broodiness has been very pronounced, and in some instances moulting has followed, but not to any great extent. The health of the birds has been good. Figures are Eggs and Points respectively:—

SUMMARY OF LEADING PENS.

Section 1.—White Leghorns.—1, Jethro Birtwistle, 760, 738; 2, Robert Henry Fryers, 735, 735; 3, Harry Crawshaw, 724, 724.

Section 2.—White Wyandottes.—1, James Hodgson, 766, 766; 2, Leslie Williams, 758, 758; 3, E. J. Stone, 731, 731.

Section 3.—Any Other Variety (Non-sitting).—1, G. B. Metcalfe (B.L.) 711, 711; 2, P. K. Berry (B.L.), 680, 680; 3, Lady Latymer (Br.L.), 591, 591.

Section 4.—Any Other Variety (Sitting).—1, P. K. Berry (R.I.R.), 729, 729; 2, Margerison's (Rishton) (B.O.), 699, 699; 3, Walter Dodgeon (R.I.R.), 675, 675.

Section 5.—Small Breeders.—1, Mrs. A. Stow (W.L.). 800, 800; 2, T. Lindley (W.L.), 741, 741; 3, G. Ware (W.L.), 767, 705.

Section 6.—Championship (10 Birds).—1, G. B. Metcalfe (R.I.R.), 1,452, 1,452; 2, J. A. Rigby (R.I.R.), 1,433, 1,433; 3, G. B. Metcalfe (B.L.), 1,419, 1,419.

Section 7.—Ducks.—1, Major J. G. Dugdale (K.-C.), 931 ,931; 2, Miss M. Bagnall (K.-C.), 798, 798; 3, Oscar C. Brown (K.-C.), 793, 793.

Modern Poultry Feeding.

By **TOM NEWMAN.**

DRY AND WET MASH SYSTEMS OF FEEDING POULTRY.

Paper Read at the Eighth Annual Poultry Conference at Harper-Adams' Agricultural College, August 6th, 1924.

On the specific merits or demerits of Dry and Wet Mash Feeding much has been written by qualified and unqualified critics. Indeed, the literature on the subject is already so vast and perplexing, that it would be unfair to add to it, without something new and definite to contribute. The knowledge that years of careful observation and experiment amongst a large and ever-progressive head of stock must naturally give, emboldens me to put on record some results of my observations, in the hope that they prove suggestive and helpful.

The feeding of poultry as a subject of study is often defined and taught as a science, whereas in reality it is neither more nor less than an art. Is it not a fact that a variety of sciences minister to the art of poultry-keeping, as they admittedly do to various other arts? We do not despise science, but utter reliance upon its infallibility may, and I think does, check the free play of personal judgment and initiative. Have we not often thought ourselves to be feeding scientifically, when the truth was, good fortune smiled on our haphazard method! Theory and practice must go hand in hand—they are complete only in each other. A scientific idea remains isolated and dies, unless ratified by the practical. And so any system of feeding that is so stereotyped or rigid as to leave no room for individual judgment or personal initiative, makes for failure rather than success. Hens cannot be economically fed by routine—there is the hen equation as there is the human equation. To all feeding must be added intelligence and the seeing eye—these are unfortunately often omitted. It seems to me that failures in this industry are mainly due to a lack of appreciation of the value of personal observation and experience. The art of successful poultry-keeping is so complex and embraces such a variety of aspects, that it would be absurd to limit its exercise to fixed rules. The most profitable flocks are almost invariably those whose owners give attention to details of proper feeding. The judgment of an experienced feeder is worth infinitely more than any rule or system of feeding. Someone has summed up good feeding by saying:—

> "Feed wholesome food, feed liberally—feed regularly—feed a variety. After that the only secret in feeding is to feed 'activity' into the hen."

What we feed is of vital economic importance to the commercial egg man, and must sooner or later make or break the pedigree breeder. Both dry and moist systems of feeding are condemned in their turn, and if we study these criticisms we discover elements of truth in both. Dry feeding is of recent use, and moist feeding is not as old as the hills.

WHY WAS MASH INTRODUCED? Before the days of poultry farming, pure and simple, the hen existed round the rickyards of the general farm, and depended solely on grain for her food, plus a little of Nature's protein. Whether by accident or intent, mere man became interested in the hen, and one of the first discoveries was her inability to lay heavily on grain rations. Hence the advent of Mash, or combination of ground feeds, with the necessary addition of animal protein. It is not sufficient to be a clever breeder of fecund stock—a breeder who neglects the important factor of feeding may be responsible for the spread of stock possessing high fecund powers, but too low a vitality to perpetuate them. We have yet to realise what a big part the feeding of poultry plays, both in regard to breeding and disease. It should be our policy to feed first and select second. Many of the problems that confront the poultry farmer of to-day—and they are serious ones—are, I feel sure, traceable to faulty feeding systems and under-nutrition. The War gave a great impetus to Dry Feeding. It was a simplified method, and its gave results—EGGS.

More eggs with less bother and labour were two of the main arguments in the Dry Feed programme. But I believe we have fastened our eyes overmuch on the egg and forgotten the hen. You call her a machine—oil and keep her clean and still turn out the goods. You forget all about the engine. Dry mash feeding is a wonderful lubricant—and very useful and necessary, but by itself it fails to maintain the interior works. Your hen machines are working still under war conditions—there is no peace for them—they begin to show signs of wear. The output is good, but the quality is poorer. It is not sufficient that a hen shall lay eggs—other things matter more. The eggs should be normal and hatch well. The rearing ought to be a pleasure—to increasing numbers it has become a nightmare! The young stock should run evenly to maturity—and when a pullet lays, her weight should increase, not decrease. Laying that results in deterioration—a very common trouble—is the forerunner of disease, poor fertility and heavy rearing losses. If your system means production of this state of affairs, it is wrong.

On hundreds of farms to-day there are signs of inexperience and lack of initiative—poorly nourished pullets, and thin layers. We read of a dearth in pullets. Does that sound as though we were progressing? The season and the weather are blamed—such excuses only evade the issue. At a period like this, when high food prices follow a disappointing season, the matter becomes serious, and our systems prove uneconomic. May I emphasise a point?

The condition of the birds and the results being obtained are the best criterion of the correctness of ration and method of feeding and management. If a bird goes off her feed the ration or method of feeding is wrong. Occasional examination of the birds at night will prove whether they are feeding well, and are in

(Continued at Foot of Column on Next Page).

Diseases of Poultry.

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

DISEASES OF THE EYE.

The layman does not perhaps distinguish clearly between the eye and its appendages, but of fowls it may almost be said that intrinsic diseases do not occur. They are certainly rare, while the lids are frequently closed and the bird temporarily blinded by maladies affecting the orbit, the facial sinuses, the lids and the conjunctival sacs.

Diseases of the eye receive scant notice in works on the ailments of birds ; a reference to "one-eyed roup" being about all that is mentioned, unless the impinging growths of fowl pox or the ulcer-like depressions of favus are described.

Anyone specialising on avian pathology will meet with other maladies, most of which are curable, and affecting the appendages. Cateract either of the lens or its capsule is very rare, and then only due to systemic or specific diseases such as tuberculosis. It would be interesting to know if breeders of the La Bresse varieties are more troubled than those who rear other breeds, as more eye cases in this breed have reached me than any others. Comparison with men or beasts does not help us, as the china or wall eye in horses and dogs is as good for sight, and no more liable to disease than the brown or other coloured iris. There is something, of course, in colouration, or white cats with a pair of blue eyes would not so often be deaf, while hearing perfectly, if with odd eyes. The colour of the iris and the shape of the palpebral fissure in the Bresse may possibly have something to do with the greater frequency of eye troubles in the breed. Who shall say?

One may safely say that the common diseases of the eye are curable but seldom cured. The owner is not alive to the importance of early measures. He hopes the trouble will pass. He thinks perhaps it is a scratch from a bramble or a peck from another bird, and that time will remedy it. It rarely does. It is essential that a bird with any affection of the eye or its appendages should be immediately isolated, and preferably in a low medium of light.

The one-eyed roup case will be recognised by the bulge under and slightly to one side of the eye. It is a distension of the maxillary sinus or an accumulation in the orbit of fluid through infection by way of the cleft palate. It is quite fluid at first, and the swelling can be boldly incised and evacuated and washed out with a weak preparation of iodine, such as half tincture and water. While the bird is in hand for this lancing, his mouth should be opened and some of the iodine forced into the cleft. If this is done at the earliest stage, the contagium is destroyed so far as other birds are concerned, and a repetition of the dressing may not be necessary. If done later, when the matter in the tumour has become denser and fast assuming the character of pus in an abscess, it will need some pressure and forcible swabbing to get rid of all infective material, besides which the wound will persistently heal up, or seal up with a clot, to be more correct, and each day need to be forced open and freshly dressed. The infectious catarrhal mucus passes down the lachrymal duct or up it to the eye, so that with so-called one-eyed roup there is usually a bad smelling matter in the nasal chambers, which can be squeezed out by pressure upon one side of the nostril. To clear away matter that may again infect the orbit, or the sinuses, or the conjunctival sacs, it is desirable to immerse the head, with mouth forced open, into a solution of one per cent. of permanganate of potash in water. This latter practice is a good routine one where the poultry-keeper is not sure of his diagnosis, as contact with permanganate will oxidise and render inert the matter of ordinary catarrhal roup or of the more virulent type of diphtheritic.

The common form of inflamed eye known as conjunctivitis and shown by hypersensitiveness to light is sometimes self-cured by the fowl retiring during the brighter hours of the day. If seen, the bird should be isolated and a simple boric and glycerine lotion applied. A more serious form of conjunctivitis is caused by dust in which dirt organisms abound. Fowls in close quarters and made to take exercise by seeking food mixed with short litter are specially liable to this. Then there is a very bad variety of conjunctivitis found in the best managed flocks with wide range, and always occurring at the same period of the year, July and August, when one may suppose that some irritating pollen is in the wind. This guess of mine is made by having observed eye-blights in lambs; and in sporting dogs in the course of their "business," but not occurring when kept at home under urban conditions. It is not merely the inflamed eye we have all had at some time or other from insect or other irritation, but results in great swelling of the conjunctival membrane, the upper and

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MODERN POULTRY FEEDING.—Continued.

good flesh. If not, then attention must be paid to the ration. If changes are made they should be made gradually, as sudden or drastic changes, especially in the winter months, will check production, and be followed by a moult. The breed to be fed will influence the method of feeding more than the ration. The same ration may be fed to any breed, but the method of feeding it may have to be changed. Some breeds fatten more easily than others. The more active the breed the more food it consumes or can handle. The measure of a good poultry feeder is determined by its ability so to feed his birds that he can stimulate their appetites, and make them consume large quantities of food, without cloying the appetite and throwing them off their feed. If we are alive to these facts we shall the more easily appreciate the birds' requirements.

(To be Continued.)

lower sacs which normally cover the globe in front and line the lids is pushed out into an inflamed tumefied mass, and the bird is unable to see its food. Several such cases have been recently sent alive, and I have made future trouble for myself by treating them successfully, because others will send live fowls which always result in loss financially. These birds were victims of the pollen poisoning I have supposed, and were cured in about six daily applications of silver solution, the solution known as collosal argentum, which is supplied by chemists with a dropper. If a few drops are poured on to the bulging membrane diffusion will follow, without manipulation of the painful membrane. A 5 per cent. solution of protargol also answers the purpose, but the colloid above named is not painful like the old preparations of nitrate in distilled water.

The space occupied by these notes will not be wasted if one can impress the single fact on poultrymen that prompt isolation and treatment at the earliest moment is the method that holds out most hope of cure. The alternative is the "slaughtering out" policy, which has finally broken down in respect of other species.

THE LANCASHIRE UTILITY POULTRY SOCIETY INTERNATIONAL EGG-LAYING TEST, 1923-24.

REPORT OF THE TENTH MONTH—JUNE 24th to JULY 21st, 1924.

The report for the above period is again a very satisfactory one. The Light Breeds are still doing well, while the Heavy Breeds are coming on to lay again, after a short period of rest and broodiness.

The egg yield has been good and consistent throughout the month, 648 eggs being laid on the first day and 645 on the last day of the period. The health of the birds is good throughout.

Below is a list of the leading pens for the month. Figures are Eggs and Points respectively:—

Heavy Breeds.—Section 2.—Large Breeders (10 Pullets).—1, Rodwell, R., Nelson, 1,888, 1,889; 2, Crabtree, W., Twiston, 1,795, 1,807; 3, Rogers, Market Drayton, 1,699, 1,804.

Light Breeds.—Section 1.—Large Breeders (10 Pullets).—1, Snowden, F., Cowling, 1,825, 1,889; 2, Aspden, R. H., Balladen, 1,775, 1,787; 3, Metcalfe, G. B., Lechdale, 1,712, 1,749.

Heavy Breeds.—Section 4.—Small Breeders (5 Pullets).—1, Purdie, J. & W., Lanark, 962, 972; 2, Helm, J. E., Rossendale, 818, 891; 3, Greenall, S. & J., Cartlon Scroop, 825, 893.

Light Breeds.—Section 3.—Small Breeders (5 Pullets).—1, Budd, C. F., Abergavenny, 1,000, 1,010; 2, Paul, Miss A. Coupar Angus, 973, 1,019; 3, Purdie, J. & W., Lanark, 913, 969.

Heavy Breeds.—Section 6.—Open (Single Bird).—1, Cook, R. N., Tarleton, 259, 246; 2, Crawford, J., Hurlford, 212, 230; 3, Rainford, J., Penwortham, 186, 202.

Light Breeds.—Section 5.—Open (Single Bird).—1, McCoomb, J. S., Bracknell, 197, 210; 2, Wallis, A. V., Oxon, 182, 200; 3, Atkinson, T., Buxton-on-Lonsdale, 192, 197.

Heavy Breeds.—Section 6.—Novice Breeders (4 Pullets).—1, Mills, R., Penwortham, 715, 754; 2, Marsden, G. E., Lostock Hill, 694, 700; 3, Tonson, W., Preesall, 660, 673.

Light Breeds.—Section 7.—Novice Breeders (4 Pullets).—1, McCoomb, J. S. Bracknell, 765, 784: 2, Sharpe, T., Dumfrieshire, 740, 733; 3, Wallis, A. V., Oxon, 746, 752.

BRIGHTON STOCK TEST REPORT FOR JUNE, 1924.

HEAVY BREED SECTION.—Total Scores to Date.

R. Mummery (9 W.W.), 1,202; W. F. Morris (12 W.W.), 1,410; Countess Buxton (5 W.W.), 680; Mrs. Crooke (4 W.W.), 557; W. Crabtree (10 W.W.), 1,372; Brighton (8 W.W.), 901; Craig Gallon, (8 R.I.R.), 737; McLeod (9 R.I.R.), 1,267; Mrs. Russell (6 R.I.R.), 698; R. Saunders (7 R.I.R.), 947; S. Simmins (10 R.I.R.), 845; Capt. Woodford (14 R.I.R.), 1,390; Capt. Tomlinson (9 R.I.R.), 1,095; Miss Clark (10 R.I.R.), 946.

LIGHT BREEDS.—Total Scores to Date.

Bradbury (14W.L.), 2,037); Craig Gallon (15W.L.), 1,608; E. Coles (10 W.L.), 1,471; Chisbury P.F. (17 W.L.), 1,805; Stanley Street-Porter (18 W.L.), 2,336; B. Glendenning (17 W.L.), 1,822; Mrs. H. Kent (18 W.L.), 1,259; Sweet-Escott (19 W.L.), 1,989; David Brown (18 W.L.), 1,975; Amsden Bros. (17 W.L.), 2,024; D. Gunston (16 W.L.), 2,138; Miss Maddison (18 W.L.), 1,566; Miss Ransford (14 W.L.), 1,964; Court Farm (17 W.L.), 1,871; Brown's P.F. (9 Anconas), 1,010; Mrs. A. Stuart (10 B.L.), 1,245.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

The tenth month of the above trials was completed on July 20th, and during the last four weeks 3,506 eggs were laid, being a slightly smaller number than during the previous four weeks. Broodiness accounts for some portion of the reduced egg production, but some birds have fallen into a slight moult. During the ten months the trials have been in progress the number of eggs laid totals 38,365, of which 30,360 have been first grade, 7,674 second grade, and 331 under weight.

The position of the leading pens in each section is as follows:—

Section 1. Division A.—Light Breeds (Six Birds).—1, Mrs. R. Crawford (W.L.), 1,112 eggs; 2, J. and A. Moore (B.L.), 1,091 eggs; 3, W. Crooks (W.L.), 1,094 eggs; 4, T. F. Wildman (W.L.), 1,115 eggs; 5, Geo. Price (W.L.), 1,061 eggs; 6, W. S. Woodward (W.L.), 973 eggs.

Section 1, Division B.—Heavy Breeds (Six Birds).—1, E. Hill (R.I.R.), 1,220 eggs; 2, H. B. Howe (W.W.), 1,082 eggs; 3, T. F. Wildman (R.I.R.), 1,163 eggs; 4, Mrs. M. V. Hughes (R.I.R.), 1,011 eggs; 5, A. Wright (R.I.R.), 1,004 eggs; 6, W. and T. Salt (W.W.), 1,111 eggs.

Section 2.—Any Breed (Two Birds).—1, J. T. Kidger (W.W.), 354 eggs; 2, Miss D. Walton (W.L.), 379 eggs; 3, J. A. Mills (W.L.), 385 eggs.

Arrangements are now complete for the competition for 1924-25. It will be on similar lines to the present competition, and full particulars, with copies of the rules and entry form, can be obtained from Mr. H. T. Atkinson, 6, St. Martin's, Leicester.

THE GLOUCESTERSHIRE REPORT.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping), for the tenth month ended July 11th, 1924:—

At this period there is the usual seasonal decline in egg production, and it is most noticeable with the heavy breeds, broodiness being the chief cause, 96 cases reported to-date. It is chiefly the lower record birds that are moulting, as the majority of birds in the leading positions are of good type and size for the breed. During the month 5,024 eggs have been recorded against 5,627 the previous month, giving a total of 46,932 eggs for the ten months, and a pullet average of 154.3 in respect of 304 birds entered.

From and including this month, Grade A. eggs count 5, and Grade B. eggs 3 points.

Early application is advised for next season's Test. Particulars and entry forms may be obtained from the Hon. Secretary. Entries close August 31st.

Section A.—Light Breed (Professional). (Five Birds constitute a pen).—G. B. Metcalfe, 4,196 pts.; Major J. G. Dugdale, 4,124 pts.; Hinton P.F., 3,876 pts.; H. T. Godber, 3,836 pts.; Coaley P.F., Ltd., 3,789 pts.; J. L. Brown, 3,766 pts.

Section A.—Heavy Breed. (Professional).—T. L. Davies (W.W.), 3,971 pts.; H. W. Fowles (W.W.), 3,893 pts.; P. S. Beales (W.W.), 3,782 pts.; W. R. Partridge (W.W.), 3,557 pts.; G. B. Metcalfe (R.I.R.), 3,526 pts.; G. H. H. Simmons (W.W.), 3,378 pts.

Section B.—Light Breed. (Confined to owners of not more than 50 laying head).—Mrs. S. A. Brown, 3,746 pts.; J. A. Hall, 3,510 pts.; K. Wilson, 2,825 pts.; Mrs. A. Japp (B.L.), 2,710 pts.; J. D. Crewdson, 2,493 pts.

Section B.—Heavy Breed. (Confined to owners of not more than 50 laying head).—Maisemore Sch. (W.W.), 3,695 pts.; L. Grist (W.W.), 3,573 pts.; C. G. Young (R.I.R.), 3,118 pts.; Miss M. Lawrence (R.I.R.), 2,909 pts.

SINGLE PEN SECTION.

Section 1.—White Leghorns.—Misses Ransford (12), 976 pts.; Major J. G. Dugdale, 930 pts.; Misses Ransford (2), 852 pts.; L. Grist, 846 pts.; J. E. Boyd, 832 pts.; Misses Ransford (5), 807 pts.

Section 2.—White Wyandotte.—Philip Clapham, 970 pts.; W. R. Partridge (23), 950 pts.; W. R. Partridge (18), 904 pts.; W. O. Garbutt (25), 860 pts.; Lord Sherborne, 846 pts.; Miss H. Baylis, 810 pts.

Section 3.—Rhode Island Red.—F. W. Clifford, 855 pts.; A. Daunton (44), 821 pts.; A. Daunton (32), 780 pts.; Miss M. Lawrence, 769 pts.; Miss H. Reed, 768 pts.; J. N. Horne, 557 pts.

Section 4.—A.O.V. Light Breed.—H. S. Hitch (Ancona), 843 pts.; G. B. Metcalfe (B.L.), 827 pts.; A. Daunton (Ancona), 751 pts.; H. L. Lemon (B. La Bresse), 742 pts.; M. A. Greenway (B.L.), 686 pts.; L. Grist (Ancona), 672 pts.

Section 5.—A.O.V. Heavy Breed.—Major J. G. Dugdale (L.S.), 1,010 pts.; Miss M. Lawrence (B'Veld), 814 pts.; J. L. Brown (L.S.), 803 pts.; Mrs. E. Weinholt (Aus. Orp.), 789 pts.; Miss H. Reed (L.S.), 754 pts.; F. R. Welch (L.S.), 697 pts.

Section 6.—Ducks.—Mrs. A. Japp (W.R.), 207 pts.; Major J. G. Dugdale (K.-C.), 193 pts.; Mrs. E. Weinholt (K.-C.), 192 pts.; W. R. Partridge (8) (W.R.), 192 pts.; W. R. Partridge (10), (W.R.), 176 pts.; J. N. Horne (W.R.), 173 pts.

Pen Duck Section. (Four duck to the pen). Report for the ninth month ended 27th June, 1924.—Major J. G. Dugdale (K.C.), 711 pts.; Bradley Agricultural School (K.-C.), 700 pts.; G. H. H. Simmons (K.-C.), 580 pts.; D. C. Herbert (K.-C.), 572 pts.; Sherborne Park P.F. (W.R.), 539 pts.; F. L. Walters (W.R.), 530 pts.

(Signed) R. A. and A. M. JOHNSON,
The Cotswold Poultry Farm, Chalford.
H. S. WRIGHT, Hon. Secretary,
Shire Hall, Gloucester.

Goat-keeping & Poultry.

By Mrs. EPPS.

Article III.

BREED OF GOATS.

The casual observer, passing through country districts, might well be tempted to ask: Are there any distinct breeds of goats to be found in England? The fact is that goat-breeding has been carried on in such a haphazard fashion that, generally speaking, the goat seen can in very few cases be described as belonging to any particular breed, nearly all of them showing traces of very mixed ancestry, and, nowadays, we have to add to the present confusion the fact that in some cases classification is by appearance and not pedigree. Only when one comes to look at the herd of a breeder who takes an intelligent interest in goats does one become aware that distinct varieties are to be found.

At the head of the breeds kept in England we can safely put the Toggenburg. This is a variety of Swiss goat, and can be easily recognised. The colour is a uniform mousey fawn, legs and under-parts white. The stripes down the face are very characteristic; the head is small and neat, horned or hornless. A variety of this goat has within recent years been evolved by British breeders, and is known as the British Alpine. Except that the mouse colour is in this case black, the two breeds are the same in appearance, though there is a noticeable tendency among the British Alpines to heavy weight, due, I suppose, to the fact that British Alpines are somewhat a fancier's breed, and many of our British goat judges would appear to prefer goats suggestive of the Kerry cow rather than of our nimble little Swiss friend.

The Anglo-Nubian goat is another very striking goat met with in England. It possesses long, drooping ears, roman nose and long neck. The coat is smooth and satiny in texture, and in some cases is spotted and marbled in a very interesting way. The milk of this variety is richer than that of any other, but in most cases it is not a very deep milker. It makes an excellent goat for cross-breedings, but in the pure state is not one of our hardiest varieties.

Saanen goats, another Swiss variety, have recently come into popular favour, and owing to the Ministry of Agriculture's recent importations, are now fairly numerous, but they have yet to prove their suitability to breed heavy milkers here. Some French authorities, notably the well-known breeder, M. Bergaud, are by no means in favour of these "albino" animals, considering that their absolutely fixed albinoism and hornlessness are undoubted proofs of persistent inbreeding and consequent degeneracy.

There are also English goats, whose interests are ably looked after by a small body of enthusiasts, the English Goat Breeders' Society. To the uninitiated it is not easy to identify a pure English goat, as markings are of almost any variety, coat either long or short, horns optional, but the breed is undoubtedly a genuine one, and should prove an asset to the country.

(Continued at Foot of Next Column.)

GOAT-KEEPING AND POULTRY.—Continued.

There are also Welsh and Irish goats met with, but as no herd book exists to establish them among our goat aristocracy, we are not likely to hear much of them except from their owners.

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Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

F. F. (Pinner). For your breeding pens the following would be a good formula, and you could use it with either R.I. Reds or White Leghorns:—1lb. alfalfa meal; 1lb. bran, 4lbs. fine white middlings, 1lb. Sussex ground oats, 1lb. maize meal, ½lb. dried yeast, and omit the dried yeast. As to grain feed for your layers you could use meat and bone meal or fish meal, and omit the dried yeast. As to grain feed for four breeders, give two parts oats, one kibbled maize, and one wheat; and for your layers, equal parts kibbled maize and wheat, or, in the winter time, all kibbled maize. We are sending you particulars of the S.P.B.A. as requested.

H. C. H. (Bracknell). The Sussex ground oats at 16s. cwt. are a very good sample, but I would not say they are "tip-top" quality; they are good enough for poultry feeding, however. The meat meal is a good sample, but I think rather dear at 23s. cwt.

H. M. (Farlsworth). As you will not be able to provide any green food, the best mash will be:—

10 lbs. of alfalfa meal, 10 broad bran, 40 fine white middlings, 10 Sussex ground oats, 10 maize meal, and 10 of meat and bone meal or fish meal. The best scratch feed for the winter months will be three parts kibbled maize and one of wheat. The mash should be always before the birds, a small feed of grain in the morning, solely to encourage them to scratch, and a handful each half an hour before they perch.

"Kilkenny" (Sheestown). If you mate a R.I. Red cockerel to Light Sussex hens the pullet chicks will be buff or red in colour, and the cockerels white or silver. You could detect the sex of the chicks at hatching.

T. R. (Bolton). I notice you say that your birds are lacking in size and bone, although bred from large size birds, and you ask me for a mash which would help to improve matters. You must remember in the first place that size and bone are not always a matter of feeding. There may be environmental conditions which tend to prevent the proper assimilation of food, or which may be preventing the birds receiving the fullest benefit from it. If it is possible to give your birds skim milk to drink, this would greatly assist matters. A good formula would be:—1 lb. bran, 1 alfalfa meal, 4 middlings, 2 Sussex ground oats, 1 maize meal, quarter linseed meal, and three-quarters meat and bone meal. You could use this either as a wet or dry mash. Probably, as the birds are so much behind, a combination of the two would be desirable—that is, dry mash always before them and about one ounce of it per bird, scalded and fed in a crumbly moist condition in addition. The grain would be equal parts good short white oats and wheat. The small red wheat preferred.

F. F. (St. Helens). In reply to your letter, I have found the following the best formula for use during moult. This is a dry mash, but you could use it as a wet one if you prefer it:—2 lbs. bran, 4 middlings, 1½ maize meal, 1½ Sussex ground oats, half dried yeast, half linseed meal, half meat and bone meal or fish meal. As the birds come into lay after the moult, you must be guided largely by their condition. Many second season birds have a tendency to put on fat. When they have completed feathering I would put them on the following mash: 1 bran, 1 alfalfa meal, 4 middlings, 1½ Sussex ground oats, 1 maize meal, and 1 meat and bone meal or fish meal. I find many beginners make the mistake of getting hens in too fat a condition after the moult, so it is advisable that they should have plenty of scratching exercise. You will see that I have given you the linseed in the mash. It would not be advisable to use hemp seed in conjunction with linseed. No, I cannot advise you to check the 90 Wyandotte pullets which look "likely for laying in a week or two." On the contrary, feed them well so that there should be enough for production and development. The food, however, should not be of a stimulating nature, and as they are on grass range I would not give any animal food in the mash whatever.

S. C. M. (Buxton). In reply to your first question, I cannot recommend the incubator, but the hover is a very good one. As your purpose is eggs, I would advise you to confine yourself to two breeds—White Leghorns and Buff Rocks, or the White Leghorn and R.I. Red would be quite satisfactory, and should stand your severe winter. Hatch your Leghorns in April; about the 15th is the best time, and your Buff Rocks and R.I .Reds about mid-March. You might obtain the designs you require by writing to the Secretary of the Ministry of Agriculture, 10, Whitehall Place, London, S.W.1. With regard to the table birds. As a pure bred I would recommend the Sussex—either the Brown or Light for preference. For a cross, Faverolles—Sussex, or Houdan-Sussex, and for heavy birds, Indian Game-Sussex. As to time of hatching, that will depend very largely on which trade you wish to cater for. If the Spring chicken-trade, when a comparatively small bird is required ,you should hatch from December onwards.

J. M. (Inverness). The sample of white fish meal is a very good one, and if the analysis is right, and there is not an excess of salt, I think it is very good value for the money (20s.). These are very coarse sharps. In fact they amount to nearly all bran. You could not use these for poultry feeding with bran. We want something nearer to the seconds. The broad bran is not at all a good sample. Neither is it broad.

"Meercat" (Turvey). The sample of ground oats you send is only a moderate one, and at 18s. 6d. cwt. very dear. Moreover, it is not "Sussex" ground, and a poor quality oat was used. The middlings, too, are very coarse, and contain a high percentage of ground-over bran. A good wet mash would be: 2lbs. midlings, 1lb. biscuit meal, 1lb. Sussex ground oats, ½lb. meat and bone meal or fish meal, dried well off with one part bran. The flock average of your 13 hens, 191 eggs in their pullet year, is very good indeed. As to your sending pullets bred from this pen to a laying test, it should be worth while, but if you have had no experience in selecting for a test, it will be advisable to get someone to do it for you. We are sending you particulars of the S.P.B.A. by post.

S. G. (Capernham). Middlings at 11s. 3d. are a good sample. The broad bran at 10s. 3d. is also very good. Maize germ meal at 11s. 6d appears to be only white maize meal, and I should not call it germ meal. Maize meal at 12s. is only fair. Barley meal at 11s. 9d. is too coarsely ground. The Sussex ground oats at 14s. are a good sample, and good value for money. Fish meal at 17s. 6d. is a good sample, and if you could get a guaranteed analysis, it is excellent value for money. Your letter was under-stamped.

W. B. (Sheffield). I cannot understand why your birds lack vigour under the circumstances. Is there any possibility of red mite or insect life, or is there any crowding on the perches? You tell me that the ventilation is good. You say that the other birds hatched six weeks later, fed and reared in the same way, are doing remarkably well. I suggest that you reduce the quantity of bran in the mash by one-half, and in place of meat meal give meat and bone meal. If you could possibly get some skim milk it would really be a great help to them. Also I would try adding one teaspoonful of cod liver oil to every pound of mash.

POST-MORTEMS.

G. H. N. The post-mortem examination of the White Bresse hen showed the cause to be peritonitis, due to the decomposition of several aborted eggs. We should advise treating the other ailing birds by fasting for twenty-four hours, and then giving fifteen grains per head of the hyposulphite of soda in the morning mash for a week. The medicine is most conveniently mixed in the mash by first of all dissolving it in a little warm water, and this ensures a more equal distribution throughout the mash.

T. W. The post-mortem examination on the W. Leghorn pullet (leg No. 9, 1923) showed the cause to be peritonitis due to a broken egg and also to free yolks, in the body cavity, which had become crushed and then decomposed. The whole of the ovarium was in a condition of hyper-activity, the yolks being produced faster than they could gain access to the fallopian tube, hence some became detached from their stalks, crushed, and set up the trouble. We should advise less stimulation, and a course of glauber salts after a twenty-four hour fast. Twenty grains per head given in the mash every morning for a week should help to bring about a more normal condition.

H. T. The post-mortem examination of the hen showed the cause to be infectious pneumonia. Very little can be done in the way of treatment of birds already affected, but prompt isolation of birds showing symptoms, the removal, if possible, of the entire flock to fresh ground, will to some extent check the epidemic. In any case the quarters occupied by these birds should receive a careful and thorough disinfection, the runs turned over and heavily limed. To fortify the remainder to resist the infection, give a teaspoonful of sulphate of iron in every pound of mash. We hope that these measures will be of service to you, but so much depends upon the possibilities of removal, isolation, and disinfection.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

Correspondence.

NATIONAL POULTRY EXAMINATION BOARD.

To the Editor of "Eggs."

Sir,—With respect to the announcements made in last week's paper as to a revision course to cover the syllabus for the National Diploma to be held at the Mechanics' Institution, Burnley, from August 18th to September 12th, it is desirable, in order to prevent misconception, to point out (1) that before centres of instruction are recognised as preparatory for the Diploma Examinations, these have to be approved by the Board; (2) that Regulation III. provides candidates must have taken a course extending over at least one year at an approved institution before they are permitted to sit for the examination; and (3) that students who enter for the course, proposed to be held at Burnley, of which the Board knows nothing beyond what has appeared, would not be qualified to enter for the Diploma Examinations at Hutton, commencing on September 15th, as suggested by some of the announcements which have appeared in the newspaper press.

Your faithfully,
EDWARD BROWN,
Sec., National Poultry Examination Board.
20-21, Essex Street, London, W.C.2.
11th August, 1924.

THE NUTRITIVE VALUE OF BONE MEAL.

To the Editor of "Eggs."

Dear Mr. Newman,—For many years poultry-keepers have used bone meal in their rations for both chicken and laying hens.

At a recent poultry conference one of the speakers made very disparaging remarks in regard to this material. I have not a verbatim report, but, according to a press statement, very little bone meal was assimilated, it being voided in its original condition.

Naturally a statement of this description sets many poultry-keepers thinking. If correct, we are not obtaining the advantage we anticipate, but are also creating a needless expense.

I remember many years since reading, in one of the text books, that in bone meal only 25 per cent. of the phosphate of lime was assimilated, but in the precipitated phosphate of lime of the Pharmacopoeia, approximately 75 per cent. was assimilated. I cannot remember whether this was a pious opinion or was based on an analytical finding, but evidently there was not sufficient conviction to cause me to cease feeding it.

Some authoritative statement would surely be welcomed. I have searched many text books on "Nutrition of farm animals," including Shearman, Hall, Kellner, Ormsby, Rose, but cannot find any tables of digestibility referring to bone meal. I am quite open to be convinced that a statement of digestibility of bone meal by dairy cows would not necessarily be equally applicable to poultry. In the case of the former the food might remain in the bowels and intestine for several days, and in the latter instance not more than eight or ten hours, according to the condition of the bird.

The whole question, however, is one to be confirmed by the research chemist after repeated analyses, and should not be left to assumption of a layman. The National Poultry Institute may possibly enlighten us on the matter.

For many years we have been devoting our attention to balanced rations, but I have always held the opinion, that we have neglected the mineral requirements of the laying hen far too much. This is, however, a matter which the practical farmer cannot decide without laboratory assistance.

The increased fecundity obtained during recent years must necessarily call for some wide alteration in the amount of mineral salts required for replacement purposes. Whether the ordinary cereals contain a sufficiency is a debatable point. An occasional analysis of a cereal may be a useful guide, but there are wide variations in samples which must be considered, according to the type and fertility of the land.

It would be really interesting to know what amount of phosphate and lime is assimilated in steamed bone meal.

Sherman (page 250), discussing experiments by Fingerling (1912) on ducks during a period of eight months, concludes "that the organic phosphorous compounds in the eggs were synthesized from inorganic phosphorous obtained in the food." Later he fed the same ducks on food richer in organic phosphorous, and as they produced the same number of eggs of similar phosphatid content, he concluded that the egg phosphatids were synthesized as readily from inorganic as from organic phosphorous compounds.

It is quite possible that an insufficiency of mineral salts is responsible for some of the present day troubles in poultry incubating and rearing, but to what extent, who is in a position to give accurate information?

Perhaps some of our scientists may enlighten us on the matter.

F. W. WAIT.

THE DEFINITION OF A PULLET.

To the Editor of "Eggs."

Dear Sir,—I was pleased to see your suggestion that a true definition of a pullet should be fixed for the members of the S.P.B.A. Your own suggestion that the bird becomes a hen on the 1st June following the year it is hatched is very good, as then the pullet has just completed its first laying season.

Also, I hope it will be possible to fix, for the benefit of members, the proper definition of a new-laid egg. I consider three days after the day the egg is laid. What do other members think?

Yours very truly,
(Mrs.) L. F. CHITTY.

BARNEVELDERS.

To the Editor of "Eggs."

Dear Sir,—For the information of those of your readers who are interested in Barnevelders, may I ask you to be kind enough to announce that there will be a special display of the breed at the British Poultry Industry Exhibit at Wembley during the week August 20th to 26th inclusive.

During that week a number of members of the British Barnevelder Club are exhibiting birds, and the club will have a stand where visitors will be welcome.

Yours truly,
E. D. BRODIE.

THE MARKETING OF TABLE POULTRY.

To the Editor of "Eggs."

Dear Sir,—I was very interested to read the articles on "The Marketing of Poultry," by A. V. Clarkson, in this week's "Eggs."

I shall be glad to know what the writer considers the best method of obtaining a market for the Petit Poussins. Whether he suggests writing to the big shops and stores, or to Covent Garden, and, if the latter, how to get to know a *reliable* salesman?

I am, yours truly,
R. ADDISON.

MARKETING OF POULTRY AND RABBITS.

To the Editor of "Eggs."

Dear Sir,—I have been interested in the articles written by Mr. A. V. Clarkson, *re* the Marketing of Poultry and Rabbits, and thank him for them.

With regard to rabbits, I see he recommends that they should be trapped for the London market. I wondered whether he or some other reader of "Eggs" would kindly give a novice a few hints on the best way of trapping rabbits. If they would I daresay they would be appreciated by others, as well as by (are the ordinary spring rat-traps used?)

"FORETHOUGHT."

OUR "FRONT" COVER.

Miss Harrison-Bell needs no introduction to our readers. The photographs of the merry maids of Sisservernes with their charges must be known to every poultry-keeper in the British Islands. One might almost say "we cannot see the wood for the trees," for when we examine their photos do we give all our attention to the ducks and ducklings? Well, perhaps we do.

Miss Bell tells us she has been one of the fortunate individuals in what has been, on the whole, a bad rearing season, and, consequently, she has a surplus of ducks and pullets for disposal, particularly White Leghorns. There is to be an extension of the duck farm and new houses, and everyone to have thatched roofs, each capable of accommodating 40. What a pretty picture it will make.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP. POULTRY LAYING TRIALS, 1923-1924.

REPORT FOR THE NINTH PERIOD.

The ninth month (12th June to 9th July) shows a further decline in production, the average output being 94 eggs per pen of six birds, compared with 101 in the previous month. Broodiness, especially among the sitting breeds, has been general, and some birds are in moult.

The following are the leading positions in each section, Pen No. 163 (Light Sussex) still holds the premier position in the Trials. In the Wyandotte Section, Pen 111, after leading for seven months, has been displaced by Pen No. 94.

SUMMARY OF LEADING PENS.

Section 1. White Leghorns.—1, Major W. H. Wilson, Longparish, Hants, 1,039 eggs; 2, J. L. Brown, near Bristol, 999 eggs; 3, H. Smith, near Sheffield, 963 eggs.

Section 2. White Wyandottes.—1, J. and W. Purdie, Lanark, 984 eggs; 2, Mrs. A. Wilson, Garth, Breconshire, 966 eggs; 3, The Misses D. and M. Keech, near Market Harboro', 967 eggs.

Section 3. Rhode Island Reds.—1, G. W. Reeves, Whitchurch, Salop, 985 eggs; 2, F. and A. H. Sanders, Rugby, 973 eggs; 3, A. Wright, near Rugby, 910 eggs.

Section 4. Sussex.—1, Col. A. Dugdale, C.M.G., D.S.O., Moreton-in-the-Marsh, Glos., 1,083 eggs; 2, Mrs. A. Robertson, Storrington, Sussex, 996 eggs; 3, W. M. Golden, Leire, Rugby, 937 eggs.

Section 5. Rocks.—1, F. R. Welch, Bewdley, Worcs., 958 eggs; 2, Capt. A. A. Plimpton, Beverley, East Yorks, 980 eggs; 3, L. A. W. Wright, Loxley, Warwick, 890 eggs.

Section 6. Barnevelders.—1, W. R. Partridge, Cirencester, 806 eggs; 2, Mrs. K. Manwaring, Horsmondon, Kent, 804 eggs. 3, Miss C. E. Roads, Bletchley, Bucks, 790 eggs.

Section 7. Black Leghorns.—1, Frank Snowden, Keighley, York, 972 eggs; 2, G. B. Metcalfe, Lechlade, Glos., 941 eggs; 3, J. H. Hodkinson, St. Ives, Hunts, 918 eggs.

Section 8. La Bresse.—1, H. Durrant, Hurstpierpoint, Sussex, 878 eggs; 2, Mrs. Hines, Winchester, 901 eggs; 3, The Purley Poultry Farm, Ltd., Surrey, 886 eggs.

Section 9. Anconas.—1, W. Hamnett, Blackpool, 877 eggs; 2, F. E. Derham, Hilton, Derbyshire, 859 eggs; 3, Stanley Street-Porter, Isle of Ely, Cambs., 804 eggs.

Section 10. Columbian Wyandottes.—1, S. J. Shepherd, near Bridgnorth, Salop, 775 eggs; 2, L. H. Wace, Solway Ash, Bridport, 798 eggs; 3, L. H. Wace, Solway Ash, Bridport, 738 eggs.

Section 11. Any Other Variety—H. B. Howe (Black Minorcas), Leicester, 956 eggs; 2, The Ryhall Mill P.F. (Brown Buttercups), Lincs., 835 eggs; 3, Stanley Street-Porter (Brown Leghorns), Isle of Ely, 787 eggs.

Exhibition Section.—1, A. Howard (Light Sussex), Maidenhead, 924 eggs; 2, W. Hamnett (Buff Rocks), Blackpool, 932 eggs; 3, Ouse Manor Farms (G. Barred Rocks), Sharnbrook, Beds., 912 eggs.

SINGLE PEN TEST.

Section 1. White Leghorns.—1, S. Street-Porter, Isle of Ely, Cambs., 190 eggs; 2, Miss H. Baylis, Stratford-on-Avon, 180 eggs; 3, Tom Barron, Preston, Lancs., 184 eggs.

Section 2. White Wyandottes.—1, E. Watson, Gatehouse Farm, near Colne, 199 eggs; 3, C. W. Shepard, Malpas, Cheshire, 182 eggs; 3, E. Clough, near Lyme Regis, 206 eggs.

Section 3. Any Other Light Breed.—1, C. W. Shepard (Black Leghorn), Cheshire, 188 eggs; 2, B. Robinson (Black Leghorn), Spilsby, Lincs., 178 eggs; 3, G. B. Metcalfe (Black Leghorn), Lechlade, Glos., 146 eggs.

Section 4. Any Other Heavy Breed.—1, B. Robinson (R.I. Red), Spilsby, Lincs., 167 eggs; 2, Maj. R. M. Woolley (R.I.R.), Barford St. Martin, 178 eggs; 3, A. White (L. Sussex), Malpas, Cheshire, 174 eggs.

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

MANURING FOR FRUIT BUDS (continued).—The length of my introductory remarks to this subject have compelled me to divide the article into two parts, and as we get nearer to the actual question of manuring to help the formation of more and stronger fruit buds, we must remember that here again we are more than ever in need of some good and reliable experiments; so for the time being have to be satisfied with the crumbs that come from those who have only tried things in a small way.

One experiment, spread over four years, was carried out at Ledbury when the trees were treated in August (while leaves and roots were still active) with a chemical manure of phosphates, ammonia and potash. This was considered to be very effective, especially as it gave good successive annual crops, and seemed a check to the biennial-bearing habit of some trees. These results were reported as being "good enough to repeat the practise."

Another small trial, this time made with Bramley Seedlings and Lord Grosvenors, also gave good results. To quote yet one other case. A Canterbury grower selected some Newton Wonders (which had not cropped for some time) for an experiment, and a special manure in proportions of 22 per cent. of sulphur-phosphates, 4 per cent. potash, and 6 per cent. ammonia was applied to the trees, and gave very encouraging signs of success. Whether the promising "abundant crops" continued I did not hear. So, although we have hardly sufficient data on which to base definite conclusions, we gather that a dressing of manures applied in the summer is beneficial to the trees and helpful in the formation of fruit buds.

The applications, in the cases mentioned, were given in July-August for the first two, but early September was selected for the trial on the Newton Wonders; and as rains followed just when wanted, it possibly helped in giving quicker results.

It seems only reasonable to conclude that, if the trees are fed at a period when they are bearing a crop, the feeding at the end of July or early August should help the development of the fruit buds to be secured for the following year. Of course, the response from similar treatment carried out in a big way must be expected to vary considerably with different growing season conditions, as it does with different varieties and different environments.

Our poultry-keepers want to keep down expenses, and naturally look to their birds to supply them with manure for their fruit trees, and as I

Continued at Foot of Column on Page 134.

THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

OUR 1925 REGISTER.

Members of the S.P.B.A., who desire to Register their birds in the 1925 Register, should apply for Registration forms, which will be ready on 10th September. These forms can be obtained from the Editor, H. Mudie Draper, 25, The Chase, Clapham, S.W.4. They must be completed and returned to him not later than 16th October. Members are permitted to register two pens free of charge, but one shilling per pen is charged for Registration for all pens above two. A separate Registration Form is necessary for each pen.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Edwards, J. G., 48, Mark Lane, London, E.C.3.
Newman, Ben, "The Warren," Carterton, Clanfield, Oxon.
Hodgson, Capt. H. J., Gransmoor Lodge, Lowthorpe, E. Yorks.
Garner, G. F., Kyber Poultry Farm, Sutton-on-Sea.
Gilbey, H. R. J., Rosary Farm, Redgrave, Diss, Norfolk.
Lodge Poultry Farm, Draycott Lodge, Kempsey, Worcester.
Morgan, H. C., "The Haven," Money Lane, West Drayton, Yiewsley, Middlesex.
Meadows, H. J., "Cloverlea," Wingletye Road, Hornchurch, Essex.
Oliver. Jesse, Bridge House, The Park, Louth, Lincs.
Hayward, C. H., "Highfields," Risley, Derbys.
Childers, Mrs. H., Pyawbue, Upper Burma, India.
Charteris, Capt. R. L., North Surrey P.F., Ltd., Chobham, Near Woking, Surrey.
Prioleau, Lt.-Col. R., Franks, Upminster, Essex.
Avery, Wm., c-o Botley House, Ley Hill, Near Chesham.
Watson. A., Messrs. Watson Bros., Ltd., Norton-on-Tees.
Fryer, Miss D. L., Smelt House, Howden le Wear, Co. Durham.
Swinburne, Rev. J. K., The Vicarage, Shifnal, Salop.
Reddaway, Bernard, Pyrford Place Farm, Pyrford, Near Woking, Surrey.

THE MIDLAND AGRICULTURAL AND DAIRY COLLEGE.

Sutton Bonington, Loughborough.
12th August, 1924.

PRELIMINARY NOTICE REGARDING CONFERENCES.

A Poultry Conference has been arranged to be held at the above College on September 23rd, and it is hoped that the following will take part therein :—

Dr. Crewe, Director, Animal Breeding Research Department University, Edinburgh. —**"Some Breeding Problems."**

Captain J. P. Rice, B.Sc., Head of the Division of Animal Diseases, Stormont, Belfast. —**"The Prevention of Poultry Diseases."**

Captain N. Bisset, Veterinary Adviser, Cardiff University.—**"Disease Problems."**

EDITORIAL.

The Harper Adams' Conference—continued from page 123

Mr. Dalling was followed by Dr. Hennape, Head of the State Serum Institute, Rotterdam. Dr. Hennape spoke on the use of Serums in Holland. He said that he had learnt a lot from attending that Conference, and he was indebted to Dr. Crowther for making that visit possible. As poultry increased in numbers so could they look forward to an increase in numbers of disease brought to their notice.

It was said that at the present time ducks were more immune from disease than hens, but he thought that the breeding of ducks for higher production and in-breeding would soon increase their liability to disease. Disease, however, was largely attributable to faults of feeding and faults of hygiene. They had found the bacillus of B.W.D. in Holland, but it had not so far caused serious losses among baby chicks. Kleine's disease, as it was called in Holland, was much more fatal. Cholera and enteritis were much more common among ducks. In Holland competent advice was procurable directly an outbreak of disease was noticed. The body responsible for this advocated isolation, proper disinfection, and the burning of all bodies of diseased birds. Serum was largely used as a preventive, and to a lesser extent as a curative treatment, but inoculation of the birds alone was not sufficient. Steps must be taken to treat them properly afterwards. The one danger of all serum treatment was that the poultry-keeper was liable to say "the birds had been inoculated, and I need give myself no further trouble in the matter." Nothing could replace proper attention and care given to the birds. Dr. Hennape's lecture was listened to very attentively, and he was heartily applauded at the finish.

On Friday morning Mr. Leslie Williams read a very excellent and instructive paper on "Pedigree Recording." There were circulated amongst his audience specimen pages of his Stud Book, which was on the loose-leaf principle. There was a good deal of discussion on Mr. Williams' paper.

Mr. Oscar Brown, who spoke on the "Feeding and Management of Ducks," warned his audience that he would never advocate a duck farm as a means of obtaining a livelihood. It should be run in conjunction with hens, and he suggested one light and one heavy breed. He stated he was afraid the real danger to the duck industry was people going in for too big numbers, for high records and in-breeding. He was even frightened of Miss Barr's work at the National Test at Bentley. He advised duck breeders not to push the claims for large units, for ducks were not suitable to be kept in large numbers; being high nervous, it would result in frequent and irregular moults and other troubles. He said that hatching ducks' eggs in January and February was absurd. The last week in April was quite early enough. He strongly contradicted the statement that it was easy to hatch ducks' eggs artificially. On the contrary, it was very difficult.

Feeding could be simply described :—Ad. lib. supply of oyster shell or cockle shell, no grit, a little grain in the morning, and as much as they would eat of soft mash in the evening. The latter to consist of plenty of nitrogenous foods, such as fish meal.

Capt. Long said that after two years' experimenting he could hatch duck eggs in incubators, both hot air and water types, as successfully as hens' eggs, and he found the best units for rearing ducklings was 50 to 60 under hovers.

TURKEYS.—Mr. G. A. Palmer's lecture on "Turkeys" was listened to with keen interest. He advocated two breeds—the American Bronze and the White, preferably the former. Free range was not necessary. A breeding pen of turkeys would flourish in a half-acre orchard with nests made of brush-wood boughs.

For stock turkeys he recommended a mash of:—One part biscuit meal, one Sussex ground oats, one sharps, with wheat and oats as the grain. The greatest trouble, on which he could not lay too much stress, was preventing breeding hens getting too fat. In-breeding was fatal, and the sooner we imported some wild blood from America the better. Housing did not matter a bit. Turkeys could rest all the winter on the top of their own house and keep in perfect health. Hens weighing 14 lbs. mated to cockerels of 20 lbs. produced the best table birds. It did not make the slightest difference whether you mated three hens or ten to a vigorous male. A two-year-old cock should have his spurs and toe-nails trimmed.

Turkey chicks should start on the third day with stale bread crumbs soaked in sweet skim milk and canary seed. Do not give them hard-boiled eggs. The best green food was white clover. He had prevented gape worm and coccidiosis, the former very common with turkeys, by using carbolic acid. Crooked breasts, he was firmly convinced, were not hereditary.

In the afternoon session Miss Maidment gave a very interesting paper on "Poultry-Keeping as a Career for Women." Followed later by Miss N. H. Bell, who dealt with "Side Lines on the Poultry Farm." Miss Bell dealt first with Fruit; secondly with bees, which she said were good for the fruit and very interesting and profitable, and the work in connection with them was not considerable. Miss Bell's paper brought the Conference to a conclusion.

THE SOCIAL SIDE.

"All work and no play makes Jack a dull boy." Evidently Dr. Crowther was of this opinion.

On the Thursday evening we had a delightful Dicken's Recital by the Rev. A. R. Runnells Moss—"Nicholas Nickleby." Mr. Runnells Moss held his audience spell-bound for 2½ hours, and the hearty applause at the conclusion showed how much his audience enjoyed and appreciated the pleasure he had given them.

On Friday evening, thanks to Dr. and Mrs. Crowther again, there was a Whist Drive, Music and Dancing, which were very much enjoyed by those who were fortunate enough to be present.

Station Cottages, Northiam, Sussex.
1-11-23.

Dear Mr. Newman,—I would like to say how much "Eggs" is appreciated here, and the sound principles governing it. We members feel that we have "a straight deal," and a genuinely helping hand. It is a point of no small importnce, for instance, to feel that advertisements of quack and useless goods and stock are not accepted.

Then, the feeding and housing advice is unequalled and reliable. So to you and your staff our hearty thanks.

With my best thanks,

Yours sincerely,
(Signed) E. A. PAINE.

KEIGHLEY AND DISTRICT BRANCH OF THE S.P.B.A. LAYING TEST.

Report for Tenth Month, which concluded August 6th. Four deaths have occurred during this month. Mr. W. Bancroft's Exchequer Leghorn, which led the Test for five months, died from prolapsus of the oviduct, as did Mr. S. Lawton's Light Sussex. Capt. Owen's Black Leghorn and Mr. A. Butterfield's White Leghorn each ruptured a yolk sac.

Light Breeds.—S. Lawton (W.L.), 203 points; W. Owen (W.L.), 202 points; Mrs. H. Wilson (W.L.), 194 points; H. Buckley (B.L.), 193 points; S. Preston (W.L.), 187 points; Mrs. J. R. Thompson (W.L.), 183 points; H. Kershaw (W.L.), 182 points; W. Bancroft (Ex.L.), 181 points; Ed. Smith (Ex.L.), 181 points; S. Lawton (W.L.), 180 points; H. Dixon (W.L.), 180 points; A. Butterfield (W.L.), 180 points; F. Snowden (W.L.), 178 points.

Other scores are: No. 34 (177), No. 36 (176), No 19 (175), No. 17 (175), No. 18 (174), No. 48 (174), No. 31 (173), No. 60 (170), No. 9 (167), No. 11 (154), No. 38 (139), No. 44 (129), No. 53 (127), No. 37 (124), No. 14 (112), No. 59 (110).

Heavy Breeds.—H. Nelson (W.W.), 207 points; H. Kershaw (W.W.), 197 points; H. Downsbrough (W.W.), 193 points; H. Rawlinson (W.W.), 193 points; J. Ellison (R.I.R.), 177 points; S. Preston (Buff Rock), 177 points; Mrs. Barker (W.W.), 177 points; S. Lawton (W.W.), 168 points; J. H. Brayshaw (W.W.), 166 points; B. Atkinson (Barred Rock), 165 points; H. Kershaw (R.I.R.), 162 points; H. Downsbrough (W.W.), 155 points; H. Reynard (W.W.), 151 points.

Other scores are: No. 12 (150), No. 8 (150), No. 58 (146), No. 10 (143), No. 63 (142), No. 27 (135), No. 62 (135), No. 29 (129), No. 6 (127), No. 30 (110), No. 64 (103), No. 28 (95), No. 22 (78), No. 13 (26), No. 57 (5).

THE MIRFIELD AND DISTRICT POULTRY-KEEPERS' ASSOCIATION LAYING TEST.

10th MONTHLY REPORT.

The tenth monthly period closed on August 3rd. The health of the flock is good, with a fair average egg production.

SUMMARY OF LEADING PENS.

Light Pen Section.—N. Firth (W.L.), 420 points; Ledgard and Brown (B.L.), 415 points*; J. W. Brown (W.L.), 340 points.

Heavy Pen Section.—W. Horsley (Buff Rocks), 332 points; T. E. Burnett (L.S.), 328 points*; J. W. Brown (W.W.), 246 points.

Light Section (Single Bird Test).—Ledgard and Brown (W.L.), 158 points; P. Saxton (W.L.), 148 points*; Sykes Bros. (W.L.), 148 points; J. A. Thackrat (W.L.), 146 points; A. Blackburn (W.L.), 141 points; H. Poole (W.L.), 134 points.

Heavy Section (Single Birds).—C. Whiteley (W.W.), 160 points; G. Brook (R.I.R.), 147 points; T. E. Burnett (L.S.), 137 points; G. Martin (R.I.R.), 134 points; A. Blackburn (W.W.), 133 points; J. Raistwich (R.I.R.), 130 points.

* Winners of Monthly Ribbon.

SOME FRUIT GROWING NOTES—Continued.

believe a fair average analysis of poultry manure will give 8 per cent. phosphates, 1 per cent. potash, and 2 per cent. nitrogen, working on this basis, we should find that we have the best part of the material we require ready to hand. Sulphate of iron, so often recommended for fruit trees, could be added in small quantities, and it gives best results when applied in combination with other manures.

The potash contained in the bonfire ashes should be used up before it deteriorates (being left exposed to rains is a common mistake), and this potash is a valuable addition to our manure. We ought to get a good deal if all hedge trimmings, grass (not wanted for hay) and other rubbish on a farm was burnt up and taken care of.

Where there are not many fruit trees and fruit bushes to be attended to, liquid manure can be made and very effectively applied, using as a rough guide about 1 lb. to the 2½ gallons of water. If ground is dry it is always best to wet with clean water first.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, AUGUST 15th, 1924.

GRAIN AND FEEDING STUFFS.—A few sales of new home-grown wheat are recorded in the eastern counties at about 11s. 6d. per cwt. No English barley is available, but samples of new oats have been shown in Bristol and London, although not yet in sufficient quantities to test prices. At country markets, however, sales have been effected at from 8s. to 9s. per cwt.

With millers continuing to exercise restraint, and in sympathy with the American and Canadian markets, prices of imported wheat are easier, No. 1 Manitoba averaging 14s. 4d. per cwt. against 14s. 10d. last week. Imported feeding barley and oats continue to advance, while maize sells at about last week's prices.

The demand for milling offals is brisk, and as supplies from the mills are only moderate, the advance which has been going on since the end of June continues unabated, bran and middlings now averaging respectively about £8 and £10 5s. per ton against £7 10s. and £10 last week. Current prices for bran are 46s. and for middlings 27s. per ton higher than at this time last year. A good trade is reported for meals generally, and prices are a shade higher for both maize and barley meal. Oil cakes are firm and dearer, all descriptions being from £2 to £3 per ton dearer than a year ago.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s.; Hull, £7 7s.; Liverpool, £8; London, £7 15s. Broad Bran: Hull, £8 7s.; London, £8 15s. Middlings, Coarse (British): Bristol, £11; Hull, £10 5s.; Liverpool, £9 15s.; London, £9 15s. Pollards (Imported): Bristol, £9 5s.; Hull, £7 15s.; London, £8 7s. Rice Bran: Bristol, £8 5s.; Liverpool, £8 5s. MEAL.—Barley Meal: Bristol, £13; Hull, £12 15s.; London, £13. Maize Meal: Bristol, £11; Hull, £9 15s.; Liverpool, £10 10s.; London, £11. Maize Germ Meal: Bristol, £11; Hull, £10 10s.; London, £11 5s. Maize Gluten Feed: Bristol, £11 15s.; London, £10.

EGGS AND DEAD POULTRY.

Trade for eggs is somewhat dull, and, while last week's quotations are maintained at Bristol and Liverpool, prices in London are generally easier, although the reduction in quotations is in most cases no more than 3d. or 6d. per 120. Quotations for dead poultry are also reduced in the London market, but elsewhere recent rates are maintained, with a steady demand.

Week-end prices—Eggs (per 120): Birtish, 18s., 17s.; Irish, 16s. 6d., 16s.; Danish, 18s. 9d., 16s. 6d.; Dutch, 19s. 6d., 17s.; Russian, 12s., 10s.; Belgian, 16s. 9d., 16s.; Italian, 16s. 3d., 14s. 6d.; Lithuanian, 15s., 12s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 2s., 1s. 8d.; Irish, 1s. 3d., 1s.; Others, 1s. 9d., 1s. 3d. Ducks, 1s. 1d., 8d. Geese, 1s., 8d.

EGGS.

Per Doz.—Ashford: First, 2s. 5d.; Second, 2s. 3d. Birmingham: First, 1s. 10¾d.; Second, 1s. 9d. Bridgwater: First, 1s. 11d.; Second, 1s. 7½d. Carlisle: First, 2s. 0d. Chelmsford: First, 2s. 1¼d.; Second, 1s. 11½d. Denbigh: First, 2s. 0d.; Second, 1s. 11d. Derby: First, 1s. 9d. Dorchester: First, 2s. 1d. Exeter: First, 2s. 0d. Hereford: First, 1s. 8d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. King's Lynn: First, 1s. 10d.; Second, 1s. 9d. Lincoln: First, 1s. 9d. Llandilo: First, 1s. 8d.; Second, 1s. 7d. Montgomery: First, 1s. 8d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 1s. 11d. Oswestry: First, 1s. 10d. Penzance: First, 1s. 7d.; Second, 1s. 6d. Salisbury: First, 2s. 1d.; Second, 2s. 0d. Shrewsbury: First, 1s. 10d.; Second, 1s. 9d. Skipton: First, 1s. 9d. Truro: First, 1s. 7d. York: First, 1s. 11d.; Second, 1s. 10d.

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 20th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

POST-MORTEMS.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

FOWLS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 9d. Derby: First, *5s. 9d.; Second, *3s. 0d. Exeter: First, 1s. 9d. Hereford: First, 1s. 6d. Ipswich: First, 1s. 10d. Lincoln: First, *5s. 6d.; Second, *4s. 0d. Llandilo: First, 1s. 9d.; Second, 1s. 7d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 5d. York: First, *5s. 0d.; Second, *4s. 3d.

DUCKS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 1s. 2d. Derby: First, *6s. 0d.; Second, *4s. 6d. Exeter: First, 1s. 4d. Hereford: First, 1s. 3d. Llandilo: First, 1s. 9d.; Second, 1s. 7d. Newport (Mon.): First, 1s. 6d. York: Second, *5s. 0d.

* Per Head.

Classified Advertisements.

(PREPAID RATES).

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS,	per line, extra	9d.
DAY-OLD CHICKS	,, ,,	1s.
DAY-OLD CHICKS	,, ,,	**1/6**

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertion or more a receipt is forwarded.

SERIAL RATES.

3	insertions	for the	price of	2
6	,,	,,	,,	4
9	,,	,,	,,	6
13	,,	,,	,,	8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

Light Sussex, Phillips; White Leghorn, Snowden; 1924 Pullets and Cockerels; 1922 Hens and Cocks. Price list free.—Barrowmore, 4, Great Barrow, Chester.

1924 Light Sussex, White Wyandottes, Exchequer Leghorns; five, four and three months: 15s., 12s. 6d., 10s. each; carriage paid. January hatched Light Sussex Cockerels; splendidly marked; £1 1s. each. 1923 Pullets, in each of the three breeds; 7s. 6d. each. All magnificent layers.—Major and Mrs. Everett, Castlemer, Kingston, Lewes.

Exchequer Leghorn Pullets and Cockerels for Sale, bred from 2nd Crystal Palace Hen and Reserve, Crystal Palace and 1st and Silver Medal Bath and West cock. Price 15s. and £1 1s. each.—Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites, 1923 and 1924 Pullets and Cockerels of this new and excellent breed for Sale, bred from Winners two 1sts and Silver Medal, Bath and West, 2nd and 3rd Leicester, Birmingham, Crystal Palace, Reserve Olympia, H.C. Dairy. Prices, from £1 1s. each.—Innes, Brean Cottage, West Monkton Taunton.

A quick moult piles up the profit

Feed your stock the Ful-O-Pep way and you get them rapidly over the moult. What is more, the Ful-O-Pep way means far less trouble and labour for yourself.

Feed half Growing Mash and half Laying Mash this month. Tip the Mash straight into the hopper—several days' supply at a time. Leave it. Give a mixed grain feed (one handful per bird) one hour before roosting time. That is all.

Feed them this way and the moult will be over rapidly and easily, and the stock ready for prolific winter egg production.

To make thoroughly sure of winter profit read "What to do in September" in the Ful-O-Pep Handy Guide, sent FREE. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP TRADE MARK
GROWING MASH
AND LAYING MASH.

NO HEATING WATER: NO TROUBLE

Sold only in sealed bags. When buying Ful-O-Pep always look for our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag.

Guaranteed by Quaker Oats Ltd., 11, Finsbury Sq. E.C.2

PULLETS.

FOR SALE.

Black Leghorns. Needing the room ha about 30 Black Leghorn Hens, 10s. 6d. eac and some 1924 Cockerels, 10s. 6d. each, f Sale.—Innes, Brean Cottage, West Mon ton, Taunton.

Australorps. Pullets and Cockerels, fo months old, good birds, from 7s. 6d. eac 1923 White Wyandotte and Light Suss Cockerels, 10s. 6d. each. — Mrs. Munda Mersham, Kent.

For Sale, Pure-bred White Wyandot Cock, bred from trap-nested hens; 280 egg £1 1s.—Townshend, Wick Lodge, Newbury

R.I.R. (Crowley), hatched March 14th, for £5, or 10s. 6d. each.—Deakin, S.P.B. 29, Stretton Road, Croydon.

Ancona Pullets, 3 months old, Darraco and Wilson's noted laying strains, 5s. eac carriage paid on 4.—Arthur P. Fento Laurel House, Birstall, Leeds.

Ten Splendid Light Sussex Pullet hatched March 6th; good laying strai 12s. 6d. each, or £6 for 10, carriage pai — Rawlinson, Lynwood, Horeham Roa Sussex.

Six White Leghorn Pullets, early Ma 1924, from daughters of Harper-Adams a National Gold Medalists, by Frank Sno den's cockerel, 10s. 6d. each; Cockere same price; Mothers cost 8s. 4d. each day-olds. Particulars — Hirst, M.S.P.B. Schoolmaster, Garforth, Leeds.

300 Light Sussex, R.I. Red, White Wya dotte and White Leghorn, March a April hatched pullets, from high-fecu trap-nested stock, 8s. 6d.,—10s. each; £1 lot.—R. Cooper, Fairbank, Smeeth, nea Ashford, Kent.

To make room for Laying Competition offer White Wyandottes, White Leghorn 1923 Pullets. Every bird trap-nested fro laying her first egg. Records supplie 75s. per dozen, carriage paid. — G. Tootall, M.S.P.B.A., Thorncliffe Poultr Farm, Barrow-in-Furness.

PULLETS.

Light Sussex, White Bresse, Black Minorc from 10s. 6d. A few Cockerels, from 8s. —Crawford, Redwing P.F., Dilham, No wich.

MISS HASLER, S.P.B.A.,
FRINTON-ON-SEA.

Early Hatched R.I.R. Pullets, fro Pedigree Trap-nested Stock; near layin 17s. 6d. each. About 20 younger, 15s. few to spare from Pen 1, registere S.P.B.A. Year Book, 25s.; individuall marked. Also early Cockerels from sam pen, from 1 guinea.

A MORE ECONOMIC BREED,
THE BLACK BRESSE.

We are Specialists of this valuable bree the best for the table and laying capacit For three years it won the first prize a the laying competition of the Vaulx d Cernay (France). We had first prize a Epernay, Marne, for beauty and utilit April pullets, 12s. 6d.; lots of 50, 10s. 6 each. Carriage paid to French po (Dieppe). All stock reared on free rang bred and fed on Tom Newman's formul

ELEVAGE MOULIN DE FISMETTES
JEAN MOLLE, FISMES (MARNE)
FRANCE.

Member of S.P.B.A., and Bresse Club o France.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, August 27th, 1924.

Editorial.

CROOKED BREAST BONES.

In his address on Turkeys, at the Harper-Adams' Conference, Mr. G. A. Palmer expressed his firm conviction that "crooked breasts" are not hereditary. Although we believe an entirely opposite conclusion was arrived at, as the result of some experimental work carried out a few years ago, we are inclined to agree with Mr. Palmer that crooked breasts are not hereditary. In view of the fact that the opposite opinion is strongly held, and we are continually advised not to breed from birds with crooked breasts, these opinions appear irreconcilable—in reality they are not so.

If we consider the possible causes of this deformity, the problem will be the clearer. We have first that form of it which is due to chicks perching on unsuitable perches before the cartilage has hardened into bone. This is an "acquired" deformity, and as such will not be transmitted to the progeny, "acquired" characters being very rarely, if ever, transmitted. From such birds as these one would not hesitate to breed. It is safe to say that 85 per cent. of crooked breasts are due to this cause. It is a simple matter to prevent, and the wonder is that so many cockerels which are intended for stock purposes are allowed to get into this condition.

The second and more serious cause is due to dietetic deficiencies, either of the vitamin fat soluble "A," which may occur when fowls are kept in close confinement and improperly fed, or, what is more frequently the case, from a deficiency of the calcium salts ; there are also cases which may be traced to unfavourable environment preventing the proper assimilation of food. All these may be classed as "ricketty." Needless to say that it would be unwise to breed from such birds, as the progeny of "ricketty" stock is not likely to be vigorous.

We have now to turn to the cause which gives rise to the belief that crooked breasts **are** hereditary. It is possible, too, that our arguments will not be sufficiently convincing to refute this view. The marked tendency of all heavy layers to fine bone is well known to our readers ; it does not follow that all big-boned birds are poor layers, indeed we know they are not. The ancestors of some of our layers were probably big-boned birds, but continuous selection for high fecundity, and the resultant early maturity, has given the fine bone which we look upon as one of the attributes of the layer. Moreover, we must remember that 85 per cent. of the mineral matter of bone is calcium phosphate, and with the heavy layer it is probable that the intake of calcium is smaller than the output, consequently the egg of the heavy producer is deficient, so that the chicks from these eggs have a tendency to what is known as "soft" bone. It is not suggested for a moment that all heavy layers throw progeny with this tendency, or even a high percentage of them, but that it is so in the case of individuals does not admit of doubt, and if breeding from such is persisted in the flock may be affected. There are strains where this tendency exists, and it may be that there are individual hens which are constitutionally unable to assimilate sufficient calcium, and that is the explanation ; but it seems fairly certain that this tendency to soft bone is transmitted—hence the very prevalent idea that the crooked breast bone is hereditary.

We have heard a well-known breeder say that all his best layers had either crooked breasts or were "spindly." To what are we to attribute this but to the fact that that elimination of lime phosphates was greater than the intake? In another case, all the progeny of a dam which laid 290 eggs in her pullet year were soft-boned. In yet another, where two lots of 50 eggs were bought from a specially highly-fecund pen of Wyandottes, 70 per cent. of the progeny developed crooked breasts, although reared under the same conditions as the owner's which exhibited no sign of the deformity. To mention one more, a male bred from a hen with a record of 272 eggs, which had a slightly-deformed breast, threw a high percentage of chicks which developed crooked breasts, but it should be mentioned that in this case it was a mistake to breed from the dam, as she showed evident signs of being "ricketty," besides being a small bird.

In conclusion, we may assume that crooked breasts are not hereditary, that they may be "acquired" as the result of using unsuitable perches before the cartilage hardens into bone ; (2) may be due to deficiencies in the diet; (3) may be due, in the case of heavy producers, to the elimination of calcium being greater than the intake, or to constitutional inability of individuals to assimilate sufficient calcium. From these we get the tendency to soft bone, which gives rise to the idea that the crooked breast bone is hereditary. It is possible, and even probable, that if bone flour was always included in the ration of breeding stock, the tendency to soft bone would at least be to some extent neutralised, and it may help to prevent one form of leg weakness in chicks.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

A CURIOUS CASE.

Mr. Ransome writes:—"I have 230 March and April pullets, none of which are laying. They have consumed about ¾ cwt. of medium flint grit in the last week. As they are on free range and full rations, this seems to me abnormal. I may say they are passing the grit absolutely unworn and as sharp as the flint grit."

This is abnormal, of course, but what is the explanation? It would seem to be a case of depraved appetite. We know that poisonous properties in certain foods will cause this, gossypool in cotton seed meal for example. There is, however, no reason to suppose it is so in this case, and the birds appear in excellent health. I have known this happen on more than one occasion, and only in one case had the birds been without grit, and that only for a week, so there is no reason to believe the craving for grit was excited by its absence. I leave the explanation to my readers.

CHICKEN POX.

I take the following from the "American Poultry Journal," as there is some reason to believe that the above disease is becoming more prevalent here, the hint may be useful:—

> "Perhaps a little preventive which we use for chicken pox will be helpful to poultry friends. Since using it we have never had but an occasional and very light case of chicken pox, except one year when we omitted the treatment and tried vaccination instead. The date for beginning the treatment may differ with different climates, but we begin the third week in July. That week we fed one pound of Epsom salts in the drinking water to 100 young birds. The next we fed one half pound of sulphur in the mash to the same number, and we keep this alternate treatment up for about six weeks. If the weather is unusually cold and damp the chicks must be kept in as long as the sulphur is being fed. This has worked like a charm with our Reds, so that we never count chicken pox among our troubles; but our White Leghorn friends claim the sulphur will bring in creamy plumage. . . . . . I should add that through reading your editorial page we have used cod liver oil for young chicks all this season, with the result that out of 1,100 chicks we have not had one with leg weakness, although the January chicks could not get out until they weighed between 2 and 3 lbs. each."

ARTIFICIAL LIGHT.

I notice a protest in one of the American papers against the use of artificial light in laying contests. The writer says that he does not mean its use will make a bird absolutely useless as a breeder, but he does mean she would have given better results if she had not be lighted, and that the continued use of lights on any flock of birds intended for breeding for a successive number of years will counteract the efforts of the most expert breeder to improve them. When lighting was first discussed, I must confess I took the view that it was not in any sense "forcing" unless carried to extremes. In one or two cases I learnt that, when it was so, the results were disastrous, the birds laying shell-less eggs, frequenting the nests without laying, layers' cramp and very bad cases at that, and many exhibiting symptoms of complete nervous breakdown. My idea was that lighting merely permitted the bird to consume a greater quantity of food essential for heavy egg production. My old friend, Mr. P. L. Johnson, took the opposite view, and the event has proved that he was right and I was wrong. Its value appears to lie chiefly in producing an increased number of eggs for a limited period, and in bringing late hatched or backward pullets into production earlier than they would under normal conditions.

TARACACUM LEONTODUM TARESCACUM.

This is not a new disease, so please don't be frightened. It is the botanical name for the common dandelion, I got it from an American paper (I mention this in case you should think I am trying to show that I have special knowledge). It has been recommended as a cure for leg weakness; personally I don't suppose it has any more virtue than an average sample of afalfa, clover, or any other green vegetable matter, as far as leg weakness goes, although many people believe the leaves possess medicinal properties. In the same paper someone writes to say that they have eliminated leg weakness by the use of cod liver oil. So you see we have the same result from two entirely different causes. What would be interesting to know is, what was the cause of the leg weakness in each case? My own impression is that it was not dietetic. What then, you will ask, was the cause? Well, I think the chicks had been debilitated by close confinement, and the leg weakness was but a symptom. I do not think it was a case of A vitamin or B vitamin; simply that in the case of cod liver oil, such rich food had a tonic effect, and in the second, the run on mother earth and the healthier atmosphere effected a cure. I am sure that if we were to consider leg weakness as the result of a debilitating atmosphere, rather than as a dietetic trouble, or as the result of boarded floors, we should have far less trouble. Of course, there are cases where it is due to dietetic deficiencies, of in-breeding, and breeding from overproductive stock. But the main cause is debility.

ONE-MAN POULTRY FARMING.

"Scarcely a month passes without the issue of a book on poultry-keeping, but there are few that we care to bring to the notice of readers.

"This week we have met an exception in Mr. A. H. Capper's modest little book, which is really a reprint of articles which appeared in 'Eggs,' and which are now published in the form of an attractive little book.

"The author says: 'After having spent six years at poultry farming, I am more than ever struck by the complete absence of business method and system on most small plants.' Following up this idea, the author gives in clear and concise language his idea of the best way to run a one-man farm. The planning of the farm, housing, feeding, breeding, culling, incubating, rearing, replacements, and the business side are all dealt with.

"We must confess to having derived a great deal of pleasure from reading these chapters again, and we have no hesitation in advising every reader of 'The Gazette' to have a copy. It is not often a poultry-keeper can buy such a good shilling's worth.—M. H. M."

(From the "Irish Farmers' Gazette," Saturday, 9th August, 1924.)

THE NORTHERN UTILITY POULTRY SOCIETY.

Readers who desire to compete in the above society's Laying Test should write to Mr. C. Longbottom, 35, Scott Park Road, Burnley, Lancs., for particulars. The society claim to have the best equipped Laying Test in the country. There are fifteen silver cups, many prizes, and gold, bronze and silver medals for competition.

IMPORTANT NOTICE.

Members are reminded that the financial year of the S.P.B.A. terminates on August 31st. All subscriptions are due as from that date.

The subscription is a MINIMUM one of five shillings per annum. Members are invited to add one shilling to their subscription for the funds of he National Poultry Council, which is doing excellent and urgent work.

The names of members whose subscription is unpaid by October 15th will be received too late or insertion in the Annual Register.

The rules of the Association provide that three members of the Council retire annually, but are eligible for re-election.

Nominations for membership of the Council hould be forwarded to the Secretary not later han Wednesday, September 17th.

The Annual Register will be published in December, and a copy sent to all members whose ubscription has been paid.

Members who desire to register their birds should end for registration forms at once to the Revd. H. Iudie-Draper, 25, The Chase, Clapham, S.W.4.

Members who desire to have the S.P.B.A. badge hould send one shilling with their subscription.

ALTERATIONS OR CORRECTIONS OF ADDRESS SHOULD BE SENT TO THE HON. SECRETARY AS SOON AS POSSIBLE.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

The Annual Laying Competition of the above Federation is to be held at the County Council Farm, Hutton, under the supervision of Mr. C. H. Dobbin, County Poultry Instructor.

Large Breeders' Test, six sections. Entrance fee 21s. (3 birds).

Small Breeders' Test, four sections. Entrance fee 7s. 6d. (single bird).

Rules and entry forms may be obtained from the Organising Secretary, Mr. E. Collier, Hoyland's Farm, Ingol, Preston.

Mr. Collier has sent me a small booklet, issued by the Federation, on "Exhibition and Utility Standard." These are now on sale—3d. to members of affiliated societies and 6d. non-members.

THE LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A quarterly meeting of delegates of the above will be held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, August 30th, 1924. Chair to be taken at 3 p.m.

AGENDA.

1. Minutes of last Quarterly Meeting.
2. Letters and Communications.
3. National Poultry Parliament Meeting held at Salisbury. (Delegates' Report).
4. Accounts.
5. Sub-Committees' Report. Finance, Show, Educational, Laying Test.
6. Any other Business.

The following Sub-Committees are requested to meet at the same place at 1.30 p.m.:—

Educational and Propaganda.—Messrs. J. R. Hull, W. Grove, T. Edmundson, J. Dewhurst, J. Whalley, W. Fletcher, and W. A. Hall.

Laying Test.—Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris, N. Holt, and H. Roscoe.

Finance.—Messrs. J. R. Hill, W. Hamnett, F. J. Butterworth, J. P. Willacy, and S. Marson.

EAST ANGLIAN EGG-LAYING TEST, 1923-24.

(Open to Great Britain.)

The following are the leading pens at the end of the Tenth Month of the above test, which is organised by the North Essex Branch of the N.U.P.S. The figures are eggs and pcints respectively:—

Section 1.—White Leghorns.—1, W. Crabtree, 606, 605; 2, Dale Egg Farm, 729, 557; 3, Allen Bros., 647, 544.

Section 2.—Any Other Non-Sitting Breed.—1, Cavanagh, Miss E. (Ancona), 618, 612; 2, Lloyd-George, R. (Ancona), 626, 586; 3, Keech, Miss D. & M. (Ancona), 525, 508.

Section 3.—White Wyandottes.—1, Rodger, E. 709, 597; 2, Gawthropp, A., 670, 537; 3, Greenall, S. & T., 850, 523.

Section 4.—Rhode Island Reds.—1, Stewart & Allen, 598, 598; 2, Turner, H., 705, 573; 3, White, L., 535, 450.

Section 5.—Any Other Sitting Breed.—1, Montgomerie, F. D. (Buff Rocks), 645, 645; 2, Green, Tom (L.S.), 580, 577; 3, Thornlea P.F. (L.S.), 618, 506.

Section 6.—Any Variety Light Breed (Amateur).—1, Coverly, G. J. (W.L.), 217, 210; 2, Aitchison, T. H. (W.L.), 206, 110; 3, Farrant, H. (W.L.), 288, 105.

Section 7.—Any Variety Heavy Breed (Amateur).—1, Atkins, Mrs. W. F. (R.I.R.), 310, 310; 2, Shenton, G. (W.W.), 238, 229; 3, Wilkinson, Misses A. D. & E. A. (W.W.), 284, 210.

Note.—Five pullets in Sections 1—5 and 2 pullets in Sections and 7 comprise a pen.

W. T. WILLIAMS, Hon. Sec.

Modern Poultry Feeding.

By TOM NEWMAN.

THE GRINDING OF FOOD AND DIGESTIBILITY.

Mr. D. P. Wright asks the following question:—"Present evidence as regards the digestibility of oat fibre seems to show that grinding in no way affects this. If this fact is true, is there any object in feeding Sussex ground oats to fowls when the whole oat is much less expensive?"

In answer to this. It is essential, both to the fattener and the egg producer, that food should be fed to the birds in its most easily assimalable form. The mere grinding of the food cannot make that which is **indigestible—digestible ;** but it can make the food itself, more **easily** digested, because it is more readily attacked by the digestive juices. If we ourselves masticate our food thoroughly, we know we shall digest it the more easily, if we do not masticate it thoroughly it may cause digestive disturbance. It **is** not suggested for a moment that the whole oat will cause digestive disturbance. If we compare masticated food to ground grain, we shall perhaps understand why ground oats are of so much greater value to the poultry-keeper than the whole grain. Now if we examine the analysis of oat hulls, we shall see that a very high percentage of it is not digestible; oat hulls contain a high percentage of silica, which is wholly indigestible. Flint grit is nearly all silica; we cannot make it digestible by grinding it to a powder.

ANALYSIS OF OAT HULLS.

Crude Nutrients.—Water, 13.8; Crude Protein, 5.0; Crude Fat, 2.5; Carbohydrates, 41.5; Fibre, 26.7; Ash, 10.5.

Digestible Nutrients.—Crude Protein, 1.9; Crude Fat, 0.8; Carbohydrates, 19.0; Fibre, 13.6.

I think we sometimes make a mistake in speaking of a food as **indigestible,** when we really mean it is **difficult** to digest. No food is wholly indigestible, but it may contain a higher percentage of indigestible constituents than another. In an average sample of wheat the total digestible matter in 100 lbs. is 80.1 per cent. In an average sample of barley it is 79.4. There is little difference in the percentage digested, but the barley is far more difficult of digestion.

THE WELLINGHAM PULLET EXPERIMENTS.

Below is the result of this experiment to date. It will be seen that Pen "C" holds a substantial lead. This is the pen with the lowest percentage of animal protein in the mash—i.e., 3 per cent. of fish meal as compared with 6 and 12 per cent. in B and A. It will serve no useful purpose to make any comment at the present time, but I would poin out that the nine birds in Pen C have average 185.4 per bird since the test began in October last the remaining bird died some months ago fron prolapsus. Not bad for dry-mash fed birds? I will be seen that a very high percentage of th pullets have passed the 200 egg mark, and tha least of 14 of the 40 will be likely to do so befor the year is complete. I only want to repeat tha this experiment has proved that we can get heav production without feeding a high percentage o animal protein, but it must by no means be re garded as being conclusive:—

PULLET EXPERIMENTS.

"A" (Blue Ring).

Ring.	Eggs.	
No.	July.	To Date.
121	17	167
228	N.M.6	96
235	19	162
250	20	187
337	21	173
388	—	83
401	17	200
405	N.M.9	120
—	—	137
—	—	128
Tot.	109	1453

Amount Consumed

Mash: 38lbs.

Grain: 23lbs. 4ozs.

Total: 61lbs. 4ozs.

Total Cost: 6s. 4.7081d.

"B" (Red Ring).

Ring.	Eggs.	
No.	July.	To Date.
80	—	128
206	2	43
210	20	141
217	21	185
271	23	212
292	25	185
303	26	215
508	24	167
524	24	204
—	—	43
Tot.	165	1523

Amount Consumed.

Mash: 38lbs.

Grain: 26lbs. 2½ozs.

Total: 64lbs. 2½ozs.

Total Cost: 6s. 6.9239d.

"C" (Green Ring).

Ring.	Eggs.	
No.	July.	To Date.
213	6	170
229	13	189
256	17	183
257	21	203
265	20	176
273	21	199
411	16	195
413	24	175
525	16	179
—	—	74
Tot.	154	1743

Amount Consumed.

Mash: 47lbs.

Grain: 26lbs. 2½ozs.

Total: 73 2½ozs.

Total Cost: 7s. 4.4276d.

(Continued at Foot of Column on Next Page).

Dry & Wet Mash Systems of Poultry Feeding.

By **E. J. MEEKINGS.**

(*Continued.*)

(By a mistake the first portion of Mr. Meeking's paper, which appeared last week, was placed under "Modern Poultry Feeding," and attributed to us. We tender our apologies to Mr. Meekings and to our readers.—Editor.)

In what way does a wet ration differ from a dry? Both are a mixture of finely-ground feeds, made largely from mill by-products and animal by-products. Both carry the bulk of the protein of the whole ration, and are easily digested. In the dry feed bran can be added —an offal not suitable for moist mashes and not desirable. The dry feed is fed in the open hoppers, and is always before the hen and ready when the appetite demands it. Wet mash must be mixed daily and fed with care. Dry feeding is usually a broader ration—that is, it carries greater bulk by way of crude fibre. Moist mash can be either a mixture of ground cereals, similar to the dry, moistened with water or milk, or it can contain a percentage of cooked vegetables. The proteins of real value are provided from animal by-products. Specially-prepared meat or fish meals are commonly used in both methods of feeding.

The point we wish to arrive at by this discussion to-day is whether the results we obtain justify our methods. I have come to the conclusion that Dry Mash feeding alone plus grain is an insufficient ration, either for rearing or laying stock, and that where such a system is maintained for any considerable number of winters and summers signs of trouble will be noticed. In many cases, too bulky a mash is fed, with disastrous results in autumn and winter egg production. Many farmers realising this fault, increase substantially the grain ration, which, in my opinion, is mistaken. Even where the mash is narrowed and a grain allowance of up to two ounces is fed, I maintain that such a ration is inadequate for good average autumn and winter production. A hen should be allowed to consume all she desires of the right feed, for high egg production depends on heavy food consumption. Remember, the more she can eat, the more she can lay. But the method must be right, else it is uneconomical. Of all meals the hen likes the dry least. Grain is always welcome, but a palatable moist mash is the hen's joy.

It is now a practice to lengthen the hen's day during the winter months. You have introduced artificial lighting to enable your hens to consume a supper or an early breakfast. Your excuse is that the day is too short for the hen to consume sufficient food to keep body conditions normal, and the egg basket full. Such an idea has been accepted and acted on. I beg to suggest that it is an expensive and unnecessary practice. Your method of feeding is at fault. The hen can eat and digest in the shortest of winter days all the nutrients her body and eggs require, if the ration and the method of feeding are right. How many laying competitions use artificial light, and how many feed only dry mash in the winter? And yet, year by year, the records have been maintained. Those poultry farmers who have not been persuaded that dry feeding is a useful and economic method, depend entirely on moist mash and grain. The amount fed to each hen probably varies on every farm. Approximately two ounces of mash and two ounces of grain constitute the average daily ration. But by this method no allowance is made for the bird's capacity for consumption, and this is, therefore, nearly as great a fault in the method of feeding as when only dry mash is fed. Any ration, however, nutritious, will fail to achieve its ideal object if the method employed limits the hen's supplies.

Years ago I was an ardent wet feeder—to be candid, dry feeding was unknown to me. In those days I do not remember any serious problems that then entered my half-hobby, half-business. I certainly never possessed a large number of 300 eggers! I was strangely enough content with an average of 120-150. It is only since my more ambitious customers demanded the record breaker that I vied with my fellow-breeders to satisfy such an unhealthy craving. During the War I was influenced by very sound argument to go dry! For several years I congratulated myself upon the wisdom of the change. But time proved otherwise. As a pedigree breeder, I have practised early hatching in large quantities for some years, and one of the most important and interesting jobs was that of steadily developing the cockerels, hatched in January and February, to maturity. It was here I first noticed the weak spot in all-dry feeding. It required a good deal more care to keep the birds in condition. The birds developed big frames, but were very slow to put on flesh. Now with regard to the pullets.

Here I noticed a more serious trouble. They began to lay long before the normal bodily weight was reached, and, furthermore, lost weight after laying, instead of slowly but surely maturing. How many people make the mistake of thinking a pullet matures when she lays! I doubt if she is fully so until twelve months old. My observation also proved to me that hackle or complete moulting in pullets was largely a nutritional matter, and certainly unnatural. I proved to my own satisfaction that a feeding practice which did not meet the physical demands for production and

MODERN POULTRY FEEDING.—Continued.

"D" (White Ring).

Ring. No.	Eggs.	
	July.	To Date.
138	9	143
234	19	159
261	26	218
285	Crp. bd.	59
333	21	195
387	Light Killed	153
392	19	153
394	21	132
—	—	103
—	—	143
Tot.	115	1458

Amount Consumed.

Mash: 24 lbs.

Grain: 20lbs. 5½ozs.

Total: 44lbs. 5½ozs.

Total Cost: 5s. 3.3346d.

maintenance of a normal healthy body reflected in loss of body weight, partial or complete moulting, and often death. Furthermore, and a point I wish specially to stress—a faulty feeding method—you notice I repeat method, and not ration—was resultant in the production of eggs that were incapable of nourishing the embryod during incubation, and which produced chicks lacking in stamina. Why is the weather so often blamed for low fertility and poor hatching and rearing results, when really the breeding stock is weary or on the point of exhaustion, accompanied by *irregular* laying, weak germs, etc. I would go so far as to say that faulty methods of feeding are in numerous cases responsible for the increasing heavy mortality amongst chickens. If the breeders are exhausted, their progeny must be weak. Every year thousands of chicks are hatched half starved, and are an easy prey to adverse or difficult environment. Weakness is productive of diarrhoea—is not that a familiar word in the long list of yearly post-mortems? Educate your feeders and reduce your chick mortality!

(To be Continued.)

FIFTH MIDLAND LAYING TEST.

TENTH MONTH, ENDING AUGUST 10th, 1924.

The latter part of this month has shown a marked tendency to moult amongst all breeds. This has so far not unduly affected egg-production, which maintains a fairly steady average around 50 per cent.

A rapid improvement in health has been made by the sick birds, all except three with slight colds—namely, numbers 325, 387 and 351, being returned to their pens as free from infection. No fresh cases have been reported the last fortnight.

Broodies are on the increase, and the following birds have been in the broody coops during the month: Numbers 331, 306, 274, 380, 152, 287, 251, 162, 186, 187, 216, 345, 156, 401, 304, 298, 327, 336, 292, 262, 230, 339 and 264.

The following birds are moulting, and, although severely affected, have laid throughout:—Numbers 230, 322, 241, 242, 243, 244, 281, 187, 1, 48, 49, 100, 133, 139, 143, 399, 404, 171, 172, 173, 161, 186, 193, 192, 246, 248, 249, 250, 251, 438, 441, 278, 293, 294, 297, 298, 299, 308, 324, 351, 352, 379, 383.

Neither time nor manner of feeding have been altered, the birds maintaining a steady appetite, and heartily enjoying the fresh green of the newly-mown runs.

There have been no deaths during this month.

THREE LEADING PENS EACH SECTION.

White Leghorns.—1, C. H. Hudson, 627; 2, Councillor Thompson, 674; 3, H. Boxall, 635.

W. Wyandottes.—1, H. W. Gee, 924; 2, Fowler Bros., 872; 3, S. & T. Greenall, 699.

R.I. Reds.—1, Major Kingscote, 633; 2, Easton P.F., 628; 3, Miss H. Graham, 621.

Light Sussex.—1, Fred Gardner, 604; 2, F. B. Welch, 558; 3, Mr. and Mrs. Jacobs, 515.

A.O.V. Light Breed.—1, M. H. Brady (Anconas), 637; 2, G. C. Woodbridge (Anconas), 503; 3, Blaksley & Blyth (B.L.), 507.

A.O.V. Heavy Breed.—H. Thomas (Buff Orps.), 534; 2, W. Hamnett (Buff Rocks), 493; 3, Major Shewell (Buff Rocks), 495.

THE PORT ELIZABETH AGRICULTURAL SOCIETY.

The motto of the above Society is: "Patience, Hopefulness, and Determination."

The Secretary, Mr. T. R. D. Carruthers, has written asking me to draw our readers attention to the South African International Egg-Laying Test, which will be held under the Government supervision.

Full particulars and Entry Forms can be obtained from these offices.

There is a splendid opportunity for Overseas breeders to make their breeds known in South Africa.

THE

Laying Life of the Hen.

By BERNARD REDDAWAY.

For a great number of years it has been considered, by those best fitted to know, that the laying life of the hen is only two years. It must, however, be remembered that at the time this opinion was formed, poultry breeding had not been brought to such a fine art as it has been of recent years.

The hen will, if allowed free range, live for about sixteen years, yet nearly always it is killed when two and a half years of age. So the bird is not able to produce the best chicken, which it would do if it were bred from when four or five years old.

The chief cost of Poultry Keeping is, without doubt, the rearing, for even if rearing losses are not suffered, a pullet cannot be raised at a lower cost than 6s., while if losses occur the cost becomes greater. Therefore, taking the cost of rearing a pullet at 6s., and only keeping the bird for two years, the cost for rearing to be taken off the profit of each of its laying years is 3s.

Now, by keeping the bird another year, although the number of eggs laid will be fewer, the profit for that year should be nearly the same as in the second year, because there are no rearing costs to be deduced.

By keeping accounts of the yearly egg yield of birds of several breeds it has been possible to fix, roughly, the rate of decrease year by year, as 16 per cent. fewer in the second year than in the first, and 14 per cent. fewer in the third year than in the second. Now, working on that basis, a bird that lays 200 eggs (an easy figure to work on) in its first year, will lay 168 eggs in its second year, and 140 eggs in its third year. A loss of 28 eggs, which at 1½d. each, comes to 3s. 6d. between the second year and the third. But as there is no 3s. to take off for rearing, the three-year-old only makes 6d. less profit than the two-year-old, while if fewer than 200 were laid in the first year, the difference would be smaller. Three-year-olds will lay about as well in the winter as the two-year-olds, also a higher price can nearly always be obtained for the three-year-old hen, because it weighs more, and will put on fat easily.

Now is the time to get the two-year-old birds into laying form for the winter, because it is no good waiting until the winter comes before taking any steps to get the birds into laying condition.

Only keep the best two-year-olds, the wasters won't pay, and feed them on mash in the morning and grain in the evening. The mash should be mixed overnight; the grain should be buried deeply in the litter. Give them plenty to eat, *don't stint them.* In the mash give about 10 per cent. fish meal, 60 per cent. sharps, and the rest S.G.O. Of course, green food and water must be given as well as grit. On this treatment the birds won't get too fat, and they should lay well.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

D. C. L. (Hastings). The crooked breast bones may be due to the cockerels perching on unsuitable perches before the cartilage had hardened into bone. It would not be hereditary although there may be the tendency to transmit soft bone. I do not think it is so in your case. The weight (4½ to 5 lbs. at 16 weeks old) is excellent, and I am pleased to see that you have got such a weight on the dry mash feeding on my formulas. They are rather heavy birds, I am under the impression that the crooked breast bones are due to their perching too early on unsuitable perches, but I cannot say definitely. If this is so, you need not be afraid to breed from them, because an acquired character is not inherited.

H. N. (Stirchley). The pamphlet "From Shell to Maturity" can be obtained from these offices for 6½d. post free. That is the one to which Mr. Levett referred in his letter last week, and the menus given there were those on which the White Wyandotte pullet laid her 321 eggs. It was also published in the S.P.B.A. Register for 1924. You must understand, however, that all the success is not claimed for the food. Had Mr. Levett's pullet not been bred from highly-fecund stock she could not have produced these eggs, whatever the food may have been. Well, I can only reply to your questions about incubators and foster-mothers by post, and as you are not a member of the S.P.B.A. you must either become one in order to receive postal advice or pay the fee of half-a-crown. If you add 4 per cent. linseed meal to your normal mash that will be all that is necessary to help your birds through the moult. Give them kibbled maize as the grain feed, keep them active, and supply plenty of fresh green food. If you heard my lecture at Bingley Hall last year you will remember that I gave all the menus and methods of feeding there.

D. P. W. (Crosswood). A cross between White Leghorn hens and an Old English Game cock will not give you sex-linked inheritance. A White Leghorn cannot be used for this purpose. The most common crosses which will give you this sex-linked inheritance are :—R.I. Red males x White Wyandotte hens ; R.I.R. males x Light Sussex hens; Brown Leghorn males x Light Sussex hens; Buff Leghorn males x Light Sussex hens; Silver Laced Wyandotte x Gold Laced cockerels; Light Sussex x Indian Game cockerels; Col. Wyandotte x Indian Game cockerels or Brown Leghorn; Barred Rock x Black Leghorn cockerels; Cuckoo Leghorns x Black Leghorn cockerels. Personally, I prefer a hover for rearing chicks. No, a Capsule regulator is not necessary if a hover is employed. I will deal with your question in reference to the digestibility of oat fibre under Modern Poutlry Feeding. I am glad to have your appreciation of "Eggs," and that you think it is the only paper which publishes anything out of the rut.

H. L. (Staley Bridge). The condition of the droppings does not appear to be due to an excess of animal protein, nor is there too much fibre in the mash. Therefore, we can only assume that it is due to one particular ingredient in the mash. Of course, if only one or two birds are affected it would be unwise to make any change, as any individual may be likely to suffer from digestive trouble. If the whole flock were affected I should first turn my attention to the maize germ, and replace this with maize meal. Also, I would replace the white bone meal with meat meal, or, preferably, a good sample of meat and bone meal. More than this I am afraid I can make no suggestions. At the beginning of October it would be better to reduce the bran by one part.

"Cora" (St. Annes). I think the cause of the poor hatching and rearing season you had was because the mash you used was excessively forcing. In fact, I do not think you could very well use one which was more so. I have no doubt that you got the eggs, but it will not do for breeding stock. For breeders I would suggest that you use: 1 lb. bran, one alfalfa meal, one Uveco, four middlings, one Sussex ground oats, one meat and bone meal, and as the grain feed give two parts kibbled maize, one wheat and one oats. The above mash would be suitable for both breeders and layers, but for your layers I would give in the grain feed three parts kibbled maize and one of wheat. I am glad to have your appreciation of "Eggs," and pleased to know that you have dropped all other poultry papers in its favour. A large number of others are doing the same thing.

"Evergreen" (Callam). This sample of meat meal is quite a good one. I can see no reason why you should not use it for your poultry. About 12 per cent. in the mash would be sufficient. The pollard is a very good sample, as it should be at such a price, but the broad bran is very moderate and at 13s. 6d. cwt. excessively dear. I do not think bone meal would be necessary as you have the bone in the sample of meat meal you send. That should be quite sufficient, but if you wish to use bone meal most corn merchants would be in a position to supply.

"Cheviot" (Kelsoe). The best formula for your five months old pullets, in which you could use the crushed oats, would be as follows:—Four middlings or fine white thirds, one crushed oats and one maize meal. As your birds are on free range and you are able to give them skim milk to drink, any animal food is quite unnecessary. You could use the house scraps. Boil them up well, see they do not include too many potatoes, or milk or suet puddings and bread crusts. We shall be pleased to welcome you as a member of the S.P.B.A.

N. W. (Blackburn). I cannot say what is the cause of the leg weakness in the pullet. Possibly she has grown a little too fast. Give her a teaspoonful of cod liver oil for every pound of mash. This may help her, and encourage her to get about as much as possible. Give her plenty of green food, but not much in the way of animal food. A good mash for your winter layers, by measure, would be (note the parts are by measure):—Three measures of bran, one alfalfa meal, four fine white middlings, one Sussex ground oats, one maize meal, half dried yeast, half meat and bone meal or fish meal. This should be always before the birds. In addition give a small handful of grain between every three birds in the litter in the morning, and one handful each of three parts kibbled maize and one wheat, as the last feed. You must learn to handle your birds and ascertain their condition, and if you think they are on the light side reduce the bran in the mash. If, on the contrary, they are inclined to be over-fat, add another part bran and see they get more scratching exercise. They should be put on this winter laying mash at the beginning of September. The two pullets which have got on will probably moult later on.

"Satisfied" (Ilminster). I am very pleased that you found the article "Food and the Feeder" so helpful. It is nice to have appreciation. Now, with regard to the samples. The ground oats at 10s. are excellent value, even if they are not "Sussex" ground. You could not do better. This sample of "straight-run" bran is a very moderate one. The maize meal "B" is a very good sample and good value for the money. "A" is not such good value, although a fair sample. This sample of broad bran has been passed through the rollers twice and flattened out. In an ordinary sample of broad bran, which has not been through this process, the flakes are not flat.

W. R. (St. Helens). The sample of bran is just fair. I should much prefer to have seen one with more of the flour in it, but it is a great deal better than most of the samples which come to hand. The middlings are of fair average quality. I have been searching all over my desk to find to whom these samples belonged, and, fearing I had lost your letter, it was a relief to me to hear from you this morning that you had forgotten to enclose it.

POST-MORTEMS.

M. E. T. H. In reply to your letter, we regret that your losses continue, and as you have reason to suspect malicious poisoning (which could quite well be accomplished by means of food thrown to your birds) we should advise applying to the Director of Agriculture of your County Council, requesting him to have an analysis made of any suspected food stuff, and the bodies of any victims which you send him. You should give him full details of the case, mentioning that we have made post-mortems and are of the opinion that poisoning was the cause.

J. M. The post-mortem examination of the hen showed the cause to be suffocation, due to diphtheritic roup (avian diphtheria). The white spots and particles that you noticed and picked off were the diphtheritic deposits, and there were large masses of these in the windpipe and larynx. We should advise isolation of all incontacts of this bird, and a thorough disinfection of their quarters. To treat, examine all suspected subjects and remove by scraping all visible deposits, and touch the bleeding parts with a silver nitrate stick; make a one per cent. solution of potassium permanganate, and, holding the bird by the legs and neck, dip the head with mouth open into it, keeping the head under for twenty seconds. All incontacts should receive the dipping daily until cured, and it would be as well, if practical, to treat the whole flock in a like manner.

E. M. The cause in the case of the R.I.R. pullet was diphtheritic roup, the head sinuses being full of the characteristic deposits. There is very little doubt, from your description, that your other birds have been suffering from roup, but in the catarrhal form. We should advise strict isolation of the affected birds and a very thorough disinfection of their quarters. The most effectual method of treatment is to dip the head, with the mouth held open, into a one per cent. solution of permanganate of potassium, keeping it immersed for twenty seconds. In the diphtheritic form, in addition to this daily dipping, any visible diphtheritic deposits must be thoroughly scraped off and the bleeding surfaces touched with a stick of silver nitrate. Forty grains of the citrate of iron to the gallon of drinking water would act as a tonic and hasten the recovery of convalescent birds.

G. C. L. The post-mortem examination of the duck showed the cause to be hemorrhagic septicaemia, a blood disease caused by a microorganism. The method of infection is at present unknown, and owing to the rapidity of death treatment not practical, but, as preventative, fifteen grains per head of sodium-hyposulphite has given good results. The medicine is most conveniently given in the mash, after first dissolving in a little water. This should be kept up for ten days or a fortnight.

M. P. We have made a post-mortem examination of the fowl, and find that it was poisoned by arsenite of copper or Paris green. This poison is used for spraying orchard trees, and it may be that other birds have had access to a packet thrown away. You may possibly find and remove this risk, which we suggest as perhaps accounting for the trouble. We can only tell you for certain that we recognise the poison however it may have been acquired.

H. P. R. The post-mortem examination of the W. Leghorn pullet showed the cause to be inflammation of the kidneys and general debility. As we have noticed many cases of kidney trouble following a ration containing a high percentage of fish meal, we should advise withholding the fish meal mentioned in your ration, which is, in our opinion, sufficiently well balanced without it. A week's dosing with glauber salts, ten grains per head daily, should help to lower tension and promote digestion. We note with pleasure your kind appreciation of our efforts to help.

E. P. A. The cause in the case of the hen was exhaustion, due to a very heavy infestation by the Cytodites nudus or air sac mite. Treatment is not very satisfactory, but a good tonic, such as one dram of sulphate of iron in one gallon of drinking water, should be of service.

GLOUCESTERSHIRE COUNTY LAYING TEST.

Mr. Price, the County Council Instructor in Poultry-keeping, asks me to notify our readers that entries for this Laying Test close on August 31st.

The Single Pen section is open to the Counties of Gloucester, Hereford, Somerset, Wiltshire, and Worcester, for the following breeds:—White Leghorn, White Wyandotte, R.I.Red, A.O.V. Light Breed, A.O.V. Heavy Breed. Ducks—one section all breeds.

Those who desire to compete should communicate at once with the Hon. Secretary: H. S. Wright, Shire Hall, Gloucester.

We can speak highly of the conditions under which the Test is run.

Goat-keeping & Poultry.

By Mrs. EPPS.

BUYING A GOAT.

Article IV.

I am afraid that the title of this article may suggest to the mind of the frivolous a turn by Harry Tate, but I would warn those who enter lightly on the purchase of a goat that this particular "turn" will no doubt end as do those of the gay comedian—in an almost welcome disaster at the termination of an over-exciting career. There are, I need hardly say, as many pitfalls for the novice in goat-keeping, when he sets forth to lay out his money, as there are for the poultry-keeper, and I would strongly advise all who contemplate buying a goat to consult someone with experience. The goat industry is not so badly organised that it is impossible to get disinterested advice, and in many counties goat societies exist who are willing and able to put intending buyers in touch with those who can be relied upon to sell the genuine article at a very reasonable figure. There is no need whatsoever to pay a long price for a goat—indeed, it is unwise for an amateur to do so, for the long pedigreed animals that are offered at a heavy price are not the animals that one could safely recommend to a beginner. There are one or two journals that make a "speciality" of goat advertisements, and this means is adopted by many of the best goat breeders to dispose of their surplus stock, but I need hardly remark that this means is also adopted by others whose stock can at all times best be described as "surplus." Here again experience is of the utmost value.

Another way of securing a goat is to buy in open market, and this is, generally, the most unsatisfactory of all, unless one has a deal of experience to guide one. All the riff-raff of the goat population congregate for sale in this way, and are most often a pitiable sight and a confession of failure on the part of all connected with them. They usually change hands at a few shillings and prove a poor investment even at that. Of course, good animals do sometimes appear for sale in this way—I myself have often seen goats put up that are really sound and recommendable at a good price, sold for a few shillings, but this method of acquisition is too speculative to be recommended. It is unwise here to venture upon the question as to the price a purchaser should pay for an animal—so much depends upon the animal; a great deal of controversy has raged over the question in the goat world lately, but this I can safely say—the price at which a good goat can be procured is far below her value, and in many cases below her cost of production.

An important point that an amateur must decide before purchasing a goat is at what stage of the goat's career he should buy her—as a kid, goatling or goat in profit? If a kid is bought, experience of rearing young stock is desirable and free range essential—two points that rule out a large number of might-be goat-keepers. If a goatling is decided upon, i.e., an animal over one and under two years of age, one has the advantage of getting an animal when she has cost her seller the maximum amount of trouble and money and is soon coming into profit, and one can also judge with some accuracy what type of goat she is likely to prove. If a goat in profit is decided upon, a higher price will be asked, and the amateur may be quite sure that his lack of experience and the change of surroundings will cause the animal to give far less milk than she has been accustomed to do. I myself recommended the purchase of an animal at about nine months of age, mating her then, and the five months that will elapse before she comes into milk can profitably be spent in getting accustomed to her ways and needs.

I should like to conclude by drawing attention to the importance of milk records when buying a goat. The milk record of a goat is of the same value as the trap-nest to the poultry breeder, and if the practice of asking for records when buying an animal were more general we should hear less of disappointment about the "gallon" goat—she would become in time as ubiquitous as the L2 hen.

LANCASHIRE POULTRY FEDERATION'S COMPETITION.

The report for the tenth month (June 29th to July 26th) in the Lancashire Federation of Utility Poultry Societies' 12 months' egg-laying competition has just been issued by the secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Heyes' farm, Tottington, who reports four deaths during the month. Bird No. 86 is isolated with a cold; all the other birds appear in good health. The heavy breeds are penned at Mr. W. Hamnett's Farm, Blackpool, who reports all the birds in good health, except Nos. 1 and 5 (W.W.), which look like going out before long. Twenty-six birds have laid 20 eggs or over during the month. Eleven birds have not laid this month, and three of them have not laid for the last three months. The leading R.I.R. went broody early in the month and rested 14 days, but has laid on each of the other days, making her total to date 235. The lowest number of eggs laid during the month was 50 on the third day, and the highest was 75 on the 28th day. The average in the heavy breeds for the month is 13 1-5 eggs per bird.

The next test will be run at the Lancashire County Council Farm at Hutton. Entry forms are now ready, and may be had on application to the secretary, Hoylands Poultry Farm, Ingol, Preston. The scoring this month is five points for a first-grade egg of 2 oz. and four points for a second-grade egg of 1¾ oz.

The positions are as follow, the figures showing the eggs and points respectively:—

LARGE BREEDERS' SECTIONS.

Light Breeds (Three Birds).—1, W. Barron, 461, 2,203; 2, R. Rodwell, 447, 2,089; 3, W. Braithwaite, 456, 2,077; 4, A. Proctor, 435, 1,952; a5, J. Hamer, 403, 1,890; 6, H. Sutton, 395, 1,840.

White Wyandottes (Three Birds).—1, C. C. Humber, 560, 3,530; 2, E. Cam, 478, 2,265; equal 3, J. Gregory, 474, 2,226; R. Moon & Son (1 m), 451, 2,226; 4, F. Holden, 459, 2,179; a5, T. Gardner (2 b), 461, 2,143; 6, R. Rodwell (1 m), 440, 2,121.

A.O.V. Heavy Breed (Three Birds).—1, R. Green (R.I.R.), 565, 2,711; 2, W. Wearden & Sons (R.I.R.), 509, 2,523; 3, R. Moon & Son (R.I.R.), 509, 2,327; 4, J. Rainford (R.I.R.), 518, 2,224; 5, T. Braithwaite (R.I.R.), 499, 2,214; a6, Kay Diggle (R.I.R.), 440, 2,041.

SMALL BREEDERS' SECTIONS.

Light Breeds (Single Birds).—1, F. & H. Evans, 142, 677; 2, H. Tattersall, 136, 648; 3, J. Smith, 127, 614; 4, W. L. Holding, 127, 598; 5, A. H. Brain, 112, 515; equal 6, E. Crowther, 114, 469; Mrs. J. A. Meller, 99, 469.

Heavy Breeds (Single Birds).—1, W. Fletcher (W.W.), 215, 1,007: 2, S. B. Lonsdale (W.W.), 164, 765; 3, T. B. Grice (L.S.), 165, 744; 4, A. Spencer (W.W.), 195, 722; 5, J. W. Pearson (W.W.), 141, 659; 6, Chadwick Bros. (W.W.), 137, 637.

b Broody, m moulting, x dead, a Bury members competing for their society's challenge cup.

Correspondence.

WHAT IS A PEDIGREE?

To the Editor of "Eggs."

Dear Mr. Newman,—Here is a description of "pedigree" as I understand it. The details are of course, fictitious:—

1915.	290-egg hen.				
	1				
1916.	Cockerel mated to hens with records				250-270
	1				
1917.	Cockerel (from 255-egg hen)	,,	,,	,,	240-256
	1				
1918.	Cockerel (from 260-egg hen)	,,	,,	,,	251-263
	1				
1919.	Cockerel (from 255-egg hen)	,,	,,	,,	235-260
	1				

Cockerels for sale, 1920.

This form seems to me to give all the information required to show that the 1920 cockerels were bred from highly-fecund hens for several years. Is not the form of a pedigree satisfactory which gives the necessary information?

If "pedigree cages" are used, individual hens' records can be given with or without the pen record, as shown in the specimen above.

My method, used here for four years, can be carried out easily, and should tell breeder and purchaser all that can be told by a paper pedigree.

The same formula can be adopted for pullets.

Yours faithfully,
C. F. A. WINBERLEY.

POUSSIN AND RABBITS.

To the Editor of "Eggs."

Dear Sir,—In reply to Mr. Addison's enquiry regarding Poussin, I think the following advice will meet his and many other cases:—

Irrespective of the fact that I am in the wholesale poultry market, I truthfully think that the best place for a poultry farmer to send his poussin is to a poultry market.

If the poultry farmer takes into consideration the following fact, I think he will only be able to agree with the foregoing statement.

We will assume that Mr. Addison finds a store or shop who is willing to take his poussin. It is obvious that when that particular shop has no further demand for poussin Mr. Addison is then where he started—namely, looking for a client for his poussin. Because one shop or store does not want poussin it does not follow that others are in the same position.

The buyers from the stores and shops attend the markets daily to satisfy their wants, and it will be readily seen that, although the price realised will possibly not be so great, there is tremendous satisfaction in knowing that one always has a demand at market price for one's produce.

No doubt Mr. Newman is in a position to answer the last enquiry of Mr. Addison.

RABBITS.

In answer to "Forethought" regarding rabbits, I am afraid he has taken me too literally.

It is true that I recommend rabbits should be trapped for the London market, but, of course, that remark only applies where a man has the opportunity of trapping instead of shooting.

Of course, on many farms the rabbits are only shot for sport, but "Forethought" must know that a rabbit which has been badly damaged through shooting will not realise so much as a rabbit which has been trapped, and whose skin is intact.

During the next week I am visiting an estate which has more rabbits on than any other, and I will get technical advice regarding the trapping of rabbits from the head keeper.

This should be of service to others similarly placed to "Forethought."

Yours faithfully, A. V. CLARKSON.

"THE CROOKED KEEL."

To the Editor of "Eggs."

Dear Sir,—In response to my letter on the "Crooked Keel," a correspondent, writing under the non-de-plume "Why?" remarked that I did not explain why the keel of a fowl should often be crooked.

In my letter I pointed to the direct and definite action of changed conditions being, I thought, primarily responsible for the crooked keel, and the most important reason for this effect I attributed to the almost complete disuse of the wings. I endeavoured to show that the disuse of the wings has led to arrest of development of the wing bones, breast muscles, and the keel. In reply to "Why," who requires a reason for the keel being crooked, I will give my ideas, at the same time I realise they are simply derived from those things which appeal to the human senses, but which nevertheless may be an error of conception.

I think the following forward the condition known as the crooked keel. First and foremost, the initial cause is the disuse of the wings. We know that when certain actions are habitually performed the result leads to muscles becoming enlarged, the bone also becomes enlarged and stronger. The reverse is the case when muscles are not sensitised by frequent use.

In the case of the breast muscles and correlated parts, owing to disuse, this portion is undergoing a struggle for nutrition—that is to say, the real struggle for existence, and is now in a transient stage. These portions are being vanquished in their struggle for nourishment, and must grow weaker. Owing to the continuity of the germplasm the process of weakening goes on with added force in successive generations, until, at last, these special portions perish and disappear from the individual.

Assuming all this to be taking place owing to these parts being ill-nourished, with the arrested development, **the breast muscles and keel would be rendered in some degree plastic.**

Better food and greater comfort has influenced the stature of the domestic hen. In her wild state the whole body, including tail, was carried practically horizontal, the whole organisation built for flight. Since domestication great development has taken place in the fore and hind parts of the domestic hen, at the same time the middle portion —the breast muscles—have grown relatively less.

"Why" will note that the equipose of the domestic hen has been considerably upset since her days of freedom (which freedom gave her the use of wings, and, in consequence, the breast muscles were firm, the keel strong and resistant to external pressure) with the added weight, the equilibrity for flight upset, for which the keel was especially built, together with a plastic middle portion. Perching may be considered an exciting or a contributory agent, tending to promote a crooked keel, which may be the inherited effects of pressure during a long series of generations under domestication.

This explanation merely admits of an outward effect primarily made possible by an inward cause, due, as I believe, to the reason given—disuse of the wings.

"Why" argues:—"If the hen is in process of losing her keel altogether one would surely expect that the keel would become less and less prominent until it had finally disappeared, though still retainits natural straightness of line in the process."

To quote a "Zoologist," the late Dr. Anderson states:—"The extremely short tail of **Macacus brinneus** is formed of eleven vertebrae, this is succeeded by five rudimentary ones, so minute that together they are only one line and a half in length, and these are permanently **bent to one side in the shape of a hook,"** etc.

Dr. Anderson thus sums up his observations:—"These facts seem to me to have only one explanation. This tail, from its short size, is in the monkey's way when it sits down, and frequently becomes placed under the animal while in this attitude. It seems as if the tail has been bent round into the inter-space between the callosities to escape being pressed between them and the ground."

I think the two cases are analogous. The monkey's tail and the fowl's heel, being functionally useless after many generations, have become distorted through being constantly rubbed and chafed.

“ Why ” continues:—“ ‘ How ’ notes the difference between the wing bones of the domestic hen, and those of wild birds of similar size, but gives no evidence that one of the signs of atrophy is deformity of bone.”

Although the ostrich has completely lost her keel, the wing bones still retain their original model. “ Why ” will therefore see there is no need for the wing bones to prove atrophy. The wing bones are protected by the position of the wings, which defend them from injury by friction or pressure.

That there is some injurious agency at work leading to enfeeblement and degeneration of the wing bones, although they still retain their straightness, may be seen on examination, and a comparison made between them and the leg bones of the same fowl. The former appears nerveless and bloodless compared with the healthful look of the latter.

When this condition is exhibited by **all** the individuals of the same species under domestication, and the reverse in the same species in a wild condition, one may consider it fairly clear evidence in favour of atrophy.

In conclusion, let me say, I have written because I feel that the crooked-keeled bird has been condemned without an effort to penetrate into the cause of her condition. I was hoping when I threw in my theories amongst old pre-conceived ideas that the zealous champions of “ In-breeding,” “ Lack of lime-salts,” “ Too early perching,” and “ Constitutional weakness,” would fly to arms. In this I have been disappointed. The Editor, perhaps, was too busily engaged on “ Is Grit Necessary? ” to give my letter a passing glance. I am hopeful that on this occasion he will have time to express his views on the subject. At the same time I thank “ Why ” for his kindly expressed interest, and trust he will renew his efforts if my answer to him does not convince. He will also excuse the delay in my reply when he learns that a distance of 8,000 miles separate us.

Yours sincerely,

“ HOW? ”

THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

OUR 1925 REGISTER.

Members of the S.P.B.A., who desire to Register their birds in the 1925 Register, should apply for Registration forms, which will be ready on 10th September. These forms can be obtained from the Editor, Mr. H. Mudie Draper, 25, The Chase, Clapham, S.W.4. They must be completed and returned to him not later than 16th October. Members are permitted to register two pens free of charge, but one shilling per pen is charged for Registration for all pens above two. A separate Registration Form is necessary for each pen.

ANSWERS TO QUERIES.—Continued.

F. N. H. (Kilkenny). With reference to th Minorca cockerels with the crooked breasts an your selling them for breeding pens. You coul not do so unless you acquainted your custome with the facts, and he was prepared to take wha he may think a considerable risk. Personally, a both the sire and dam had perfectly straigh breasts I do not think this tendency is inherited You will read the article on this subject in thi week's “ Eggs.” The real point is that you hav to persuade your customer that these birds ar fit for the breeding pen. I should not be afraid t use them myself, but it would not do to send then out to a customer without pointing this defec out to him.

“ Novice ” (Taunton). If your April hatche birds are behind, the following would be the bes dry mash to bring them along :—2 lbs. bran, middlings, one alfalfa meal, 2 Sussex ground oats one maize meal, half dried yeast and half meat an bone meal. If you could also give an additiona feed, as the last feed, of oats covered with col water, allowed to simmer on the fire until the wate is absorbed, and then dried off with equal part middlings and bran, this would help ther materially. You say they are tightly feathered, bu do not appear to build up frame. Often a tightly feathered bird appears to have a smaller fram than it really has, but you must remember tha size is inherited. If the feeding is insufficient will retard development.

“ Elwy ” (Stourbridge). In reply to yours There is a very great chance of all those pullet which are eating eggs starting the others in th same way, as this is merely a vicious habit. Th best means I know of stopping it is to nail piece of dark cloth across the front of the nest slit this up the middle, in order that the bird ca get in and out of the nest without seeing the eggs then scatter some china eggs in the immediat neighbourhood of the nest and let them have peck at those. I know of no better method tha this. All you can do is to feed the 50 W. Wyandotte February-hatched pullets which are layin on full feed so as to keep them in condition fo both production and development. Your best wa of ascertaining daily or weekly prices of eggs i to consult the columns of the “ Daily Telegraph ” or one of the London papers, or probably you local papers would be better in your immediat neighbourhood. I cannot tell you how you ca ascertain the retail price in your own district, an the post cards you suggest would not help muc as to the ruling prices, as this varies so very muc in different neighbourhoods. Even in the suburb of London it varies very considerably. I advis

(Continued at Foot of Column on Next Page).

The Scientific Poultry Breeders' Association.

KEIGHLEY AND DISTRICT BRANCH.

The monthly meeting of the above branch was held in the Temperance Hall, Keighley, on August 20th. Mr. Frank Snowden presided over a good attendance.

The minutes of the meeting held on July 23rd were read and passed.

It was resolved that, at the Annual General Meeting on March 4th, 1925, it should be arranged that the financial year should end on the same date as the S.P.B.A.—namely, August 31st.

The branch, having appealed to the S.P.B.A. Council to reduce the subscriptions to members subscribing through the branch, had received a reply from Mr. Newman to the effect that at the Council meeting the following resolution was passed:—"That at the beginning of the new year (September 1st) branch members shall be accepted at 2s. 6d. per member, one Register shall be supplied for every 5s. sent by the branch—that means, for every two members who pay the 2s. 6d. subscription one Register will be sent. The branch secretaries must be responsible for the subscriptions."

Mr. Fortune gave a report of the Council Meeting held at York on July 24th. Forms were distributed to members for their signatures promising to take up at least £1 in the Yorkshire Federation International Laying Test Company.

It was hoped to raise another £50 in addition to the £50 promised from the branch funds. Each individual will be an independent shareholder, but the credit of the lump sum will be given to the Society. The Secretary of the Society will receive the interest to be divided out to the members who are shareholders. If at any time a member wished to sell his share, or shares, the branch would purchase same. Already £10 has been promised. The Yorkshire Federation of P.S. having fixed upon August 30th as date of their sale of stock and plant on the site of their Laying Test at Otley, Mrs. Wilson proposed, and Mr. Kershaw seconded, the motion that a trip be arranged for members and friends to attend this sale, and the visit to Mrs. Vowles P.F. at Benningbrough be postponed until next summer. This motion was carried unanimously, and, on the proposition of Mr. Fortune, and seconded by Mr. Slee, Mr. Hey, 178, Spencer Street, Keighley, was asked to arrange for a charabanc to take the party to Otley, which would leave Keighley station at 1.15 p.m. Any person wishing to go with the trip must notify him not later than first post on August 29th. Mr. Snowden asked that all members wishing to take advantage of the offer of the S.P.B.A. Council to reduce subscription to branch members to pay in same to the Secretary, as soon as possible, so that these could be forwarded in time for names and addresses to be included in the S.P.B.A. Year Book for 1925. Seven new members have been enrolled during the week. Meeting closed at 9.40 p.m.

ANSWERS TO QUERIES—Continued.

limestone grit. When I state parts, I mean parts by weight; when I mean measure, I always use the word measure. Yes, the old threepenny-bit measure would be quite accurate enough for the salt mixture. With regard to the samples. The bran is a wretched sample. The S.G.O. are of fair average quality, but appear to contain a percentage of barley. The maize meal is a good sample, and the middlings are also good.

T. L. S. (Kendal.) The sample you send is not Sussex ground oats, but it could take its place, but the particular sample you send contains a lot of fluff and hair.

THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

APPLICANTS FOR MEMBERSHIP.

Smith, W., 6, Rodger Street, Cellardyke, Anstruther, Fife, N.B.
Thomson, R. Percy, Kilmardinny, Bearsden, Dumbartonshire.
Saunders, T., Ribble Lane, Chatburn, Nr. Clitheroe, Lancs.
Darnall, H. Adair, The Garden Cottage, Binstead Hall, Binstead, I.O.W.
Helm, H., Hade Edge, Holmfirth, Yorks.
Martin, Cecil, Martin's Stores and Diamond Fruit and Poultry Farm, Pear Tree Lane Corner, Hempstead, Nr. Chatham.
Mellor, H. J., 19, Queen Street, Failsworth, Manchester.
Robinson, Mrs. W., Grey Gables, Gt. Missenden, Bucks.
Sutton, Wm. J., 2, School Road, Knowle, Bristol.
Ritchie, Messrs. R. and F., Overton Poultry Farm, Strathaven, Lanarks.
Stevens, David, 52, Station Road, Hednesford, Staffs.
Hemsley, G. H., Bury Farm, Arlesey, Beds.
Gordon, H. R., The Laurels, Carterton, Oxon.
Akenhead, David, Chieveley P. Farm, Chieveley, Berks.
Poynter, H. G. (Manager), Chieveley P. Farm, Chieveley, Berks.
Stott, G. W., Hon. Sec., Marsh Daisy Club, Bowling Green Hill, Darwen.
Pye, Lawrence, K., Burleigh, Cobham, By Gravesend.
Dunkley, Wm. H., Woodside Farm, Wood Lane, Whitwood, Yorks.
Court, C. C., Ditton Lea, Ilminster, Somerset.
Lee, Mrs. T. H. Hamilton, Bryn Gwenyn, Taly Cafn S.O., N. Wales.
Bain, Miss R., N.D.D., Agricultural College Office, 5, High Street, Dingwall.
Thurn, F. C. M. im-, Snow Hill Cottage, Crawley Down, Sussex.
Gregory, G. S., "Clovelitos," St. Albans Road, Garston, Liverpool.
Lissant, Alfred H. F., 17, Como Road, Forest Hill, S.E.23.
Worthington, Mrs. J. T., Worsley Hill Farm, Whitefield, Manchester.
Sillem, F. H., 12, Rothsay Gardens, Bedford.
Courtman, Rev. E. Goodwin, The Priory, Awre, Glos.
Thomas, P. N., Manager, Universal Requisites Supply, Newnham, Glos.
Kershaw, Hugh, The Old Rectory, Keighley.
Farnell, J. W., 3, The Fauld, West Lane, Haworth, Nr. Keighley.
Thompson, J. R., Hoyle House Farm, Oakworth, Nr. Keighley.
Wilson, T. W., Minorca Farm, Denholme, Bradford.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

Report for the 11th monthly period of 4 weeks, ending Aug. 17th.

During the past four weeks there has been a slight falling off in egg production as compared with the previous month, but this has been only slight, and less than might have been expected, broodiness and moulting being mainly responsible. 3,113 eggs were laid during the four weeks, as against 3,506 in the previous month. During the 44 weeks the trials have been in progress 41,476 eggs have been laid, of which number 33,012 have been first grade. The Rhode Island Reds in Pen 23 have laid 120 eggs in the four weeks, and one bird in this pen has laid 250 eggs to date. The position of the leading pens is as follows:—

Section 1.—Division A.—Light Breeds (6 Birds).—1, Mrs. R. Crawford (W.L.), 1201 eggs; 2, J. & A. Moore (B.L.), 1168 eggs; 3, W. Crooks (W.L.), 1200 eggs; 4, T. F. Wildman (W.L.), 1214 eggs; 5, Geo. Price (W.L.), 1142 eggs; 6, W. S. Woodward (W.L.), 1054.

Section 1.—Division B.—Heavy Breeds (6 Birds).—1, E. Hill (R.I.R.), 1340 eggs; 2, T. F. Wildman (R.I.R.), 1267 eggs; 3, H. B. Howe (W.W.), 1155 eggs; 4, W. & T. Salt (W.W.), 1211; 5, Mrs. M. V. Hughes (R.I.R.), 1088 eggs; 6, A. Wright (R.I.R.), 1075 eggs.

Section 2.—Any Breed (2 Birds).—1, J. T. Kidger (W.W.), 381 eggs; 2, J. A. Mills (W.L.), 419 eggs; 3, Miss D. Walton (W.L.), 405 eggs; 4, Mrs. M. V. Hughes (W.L.), 429 eggs.

There has been no case of infectious disease during the competition, but several birds have died from constitutional and other causes.

The trials conclude on September 14th, and the next trials commence on October 6th

Rules for the 1924-25 trials are now ready, and can be obtained from Mr. Atkinson. The closing date for entries is September 1st.

H. T. ATKINSON,
County Instructor in Poultry-Keeping.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 22nd AUGUST, 1924.

GRAIN AND FEEDING STUFFS.—There is not much new crop wheat on offer as yet, although some samples have made about 12s. 8d. per cwt. in London and similar figures are reported from the country. Malting barley sells at an average of about 14s. to 15s. per cwt., best samples readily making over 16s., while grinding descriptions are also in good request. A fair number of samples of black oats have been shown, making round about 9s. per cwt. Imported wheats have again been rather easier during the week, although a firmer tone was in evidence at the close. Imported barley and maize continue to meet a good trade, and prices are firm, but oats are a shade easier. Supplies of milling offals are still short, and, although demand is hardly so keen, prices are firmly held, while meals generally continue to meet a good enquiry. Linseed cakes are quiet, but there is no appreciable reduction in quotations, and cotton cakes are in request at fully late rates.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s.; Hull, £7 7s.; Liverpool, £8; London, £8. Broad Bran: Hull, £8 7s.; London, £8 17s. Middlings, Coarse (British): Bristol, £11 2s.; Hull, £10 5s.; Liverpool, £9 15s.; London, £9 12s. Pollards (Imported): Bristol, £9 5s; Hull, £7 15s; London, £8 7s. Rice Bran: Bristol, £8 10s; Liverpool, £8 5s. MEAL.—Barley Meal: Bristol, £13 5s.; Hull, £12 15s.; London, £13. Maize Meal: Bristol, £11 5s.; Hull, £10 3s.; Liverpool, £10 12s.; London, £11. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 15s.; London, £10 17s. Maize Gluten Feed: Bristol, £11 15s.; London, £10 5s.

EGGS AND DEAD POULTRY.

Eggs are in quiet demand, and imported descriptions are a shade cheaper in London. Dressed poultry is again cheaper, 1st quality fowls averaging 1s. 6½d. and ducks 1s. 3d. per lb., against 1s. 8d. and 1s. 4d. respectively last week.

Week-end Prices—Eggs (per 120): British: 18s., 17s.; Irish: 16s. 6d., 16s.; Danish: 18s. 3d., 15s. 6d.; Dutch: 19s., 16s. 6d.; Russian: 11s. 6d., 10s. 6d.; Belgian: 16s. 6d., 16s.; Italian: 15s. 6d., 14s. 6d.; Lithuanian: 15s., 12s. 6d.

Dead Poultry (per lb.): Fowls—Surrey: 1s. 9d., 1s. 4d.; Irish: 1s. 2d., 1s. 0d.; Others: 1s, 6d., 1s. 0d. Ducks: 1s. 0d., 10d. Geese: 1s. 0d., 10d.

EGGS.

Per Doz.—Ashford: First, 2s. 5½d.; Second, 2s. 4d. Birmingham: First, 1s. 10¾d.; Second, 1s. 9d. Bridgwater: First, 2s. 1d.; Second, 1s. 10d. Carlisle: First, 2s. 2d. Chelmsford: First, 2s. 2d.; Second, 2s. 0d. Denbigh: First, 2s. 0d.; Second, 1s. 11d. Derby: First, 1s. 10d. Dorchester: First, 2s. 0½d. Exeter: First, 2s. 0d. Hereford: First, 1s. 9d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. King's Lynn: First, 1s. 10d.; Second, 1s. 9d. Lincoln: First, 1s. 9d. Llandilo: First, 1s. 9d.; Second, 1s. 8d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 2s. 0d. Oswestry: First, 1s. 11d. Penzance: First, 1s. 7d.; Second, 1s. 6d. Salisbury: First, 2s. 2d.; Second, 2s. 1d. Shrewsbury: First, 2s. 0d.; Second, 1s. 10d. Skipton: First, 1s. 9d. Truro: First, 1s. 7d. York: First, 2s .0d.; Second, 1s. 11d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 9d. Derby: First, *5s. 0d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 5d. Ipswich: First, 1s. 10d. Lincoln: First, *5s. 6d.; Second, *4s. 0d. Llandilo: First, 1s. 8d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Shrewsbury: First, 1s. 6d.: Second, 1s. 3d. Truro: First, 1s. 5d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 3d.; Second, 1s. 0d. Derby: First, *5s. 9d.; Second, *4s. 0d. Exeter: First, 1s. 4d. Hereford: First, 1s. 3d. Llandilo: First, 1s. 8d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 6d. York: First, *6s. 0d.; Second, *5s. 6d.

* Per Head.

LONDON MARKET ADVICE TABLE.

SEPTEMBER, 1924.

As anticipated the bottom has practically fallen out of the London Poultry Market.

The reasons for this are several, but the chief contributing causes are that the London season has practically finished; the game season has commenced, large supplies are arriving from Ireland, and enormous numbers of people are at seaside and other health resorts.

Even Surrey Capons have been sold as low as 1s. 6d. to 1s. 8d. per lb. last week.

Small Chicken are practically unsaleable in London, and the buyers hardly look at anything under 3lbs.

Old hens should be sent alive, and providing they scale 4½lbs. or over, they will do fairly well, but the Light Breed hens are only making from 1s. 6d. to 2s. each of the very best.

Ducklings should weigh 5lbs. or over, and the small ducklings should not be sent to London.

Rabbit trapping will commence all over the country during this month, but high prices will not rule until October is here.

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E G

Wednesday, September 3rd, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

AUG 28 1924

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Edited by TOM NEWMAN.
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Three Months " " 3/3

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Complete Laying Meal	16	6
Mixed Poultry Corn (Specially Cleaned)	13	0
Clover Meal	13	6
Meat Meal	17	6
Sussex Ground Oats (95 per cent.)	15	0
Pure Barley Meal	13	0
Pea Meal	14	6
Kibbled Round Corn (Sifted)	12	6
Flint Grit (Three Sizes)	7	3
Oyster Shell	7	6
Alfalfa Meal	16	6
Maize Meal	13	0
No. 1 Chick Grain (First Feed)	18	0
No. 2 Chick Grain (Second Feed)	16	6
Chick Rearing Meal	16	6
Meat and Bone Meal	16	0
Bone Meal	15	0

Etc., Etc., Etc.

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	Per cwt.
Dried Grains	12/-
Ground Malt Culms	9/-
Maize Meal	16/-
Barley Meal	16/6
Pig Meal	14/-
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Sussex Ground Oats (Pure Oats. No admixture whatever.)	18/-
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,, ,, No. 2	18/-
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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 3rd, 1924.

Editorial.

THE INHERITANCE OF FECUNDITY.

We have had sent us a copy of a little book published in 1865, entitled: "Poultry Breeding in a Commercial Point of View," as carried out by the National Poultry Co., Ltd., Bromley, Kent.

In a chapter devoted to "The Ovarium" the author remarks:—

> "It has been ascertained that the ovarium of a fowl is composed of 600 ovulas or eggs, therefore a hen cannot during her whole life, lay more eggs than 600, which, in the natural course, are distributed over nine years in the following proportion."

The proportions as given are: 15-20 eggs in the first year, 100-120 in the second, 120-135 in the third, 100-115 in the fourth, then we find a gradual decline, until in the ninth year the number of eggs is given as from 1-10.

It is unnecessary to comment on these figures. They are only of interest, as exhibiting the views held on egg production 50 years ago, and we know that the number of "ovulas," or potential eggs, is nearer 2,000 than 600, and that we have individual birds which have laid over a thousand eggs, and others which have laid more than 600 in three years.

But what is of interest is the fact that both in the good and bad layer the number of ovulas or potential eggs is approximately the same, and we venture to suggest that in the study of the Inheritance of Fecundity, sufficient importance has not been attached to this fact; or, to put it in another way, the study of genetics has been a study apart, without any regard to the study of physiology or the constitution of the hen with which it is inter-dependent, and that this has led to the confused ideas as to what we shall term for convenience, the mode of inheritance of fecundity.

All hens are fecund—it is a matter of degree. What is of importance for us to learn is what it is that permits the highly fecund hen to give the fullest expression to this racial characteristic? What it is that prevents her low fecund sister from doing so?

The answer to the first question will probably be: "Her environment"; but that is not even partially true; the environment is but an incident. It may prevent her from giving the fullest expression to her racial character, but it cannot cause her to do so; the environment will not help the low fecund sister, who has inherited the same number of ovulas, to become highly fecund.

In effect, then, we are stating that it is the physical constitution, or perhaps it will be more clear, and distinguish physical constitution from physical *conformation* if we say it is the chemical composition of the body which determines whether a hen shall be high or low fecund, which is tantamount to saying that all hens have the same genetic constitution, and in so far as they inherit the same number of ovulas, this would appear to hold good.

This brings us into conflict with established theories, as, for example, that high fecundity is sex-linked, that the dam cannot transmit her fecundity to her daughters direct, but can only do so through her sons. There is obvious need for the elaboration of our theory.

The individual is the product of two others, and of necessity differs from either, thus his or her constitution is not wholly that of the dam or sire, but partakes of both, although not necessarily in the same degree; the progeny may have the constitution of either sire or dam more strongly impressed upon them. This is very apparent in all flocks, and is the more noticeable when the blood lines of the parents are widely different than when they are the same.

The mating of a highly fecund dam to a low fecund male will result in wide variation in the production of the progeny. Our suggestion is that the female will transmit her fecundity to all her daughters in the same degree, but the degree in which they are able to give expression to this character will depend entirely on what extent the individual partakes of the physical constitution of the dam or sire. If in such a case it is largely that of the sire, then production will be low, because his physical constitution INHIBITS high fecundity. If it is largely that of the dam then production will be high, although it is improbable that any individual will equal that of the dam.

The fact that the external characteristics of the layer and non-layer differ so widely is surely an indication that the constitution does determine whether a hen shall be high or low fecund (we are not alluding to the genetical constitution). It does determine whether she shall develop size, feathers, fat, or eggs in large or small numbers.

From our contemporary, "*Poultry World*," we take the following reference to some experimental work carried out by the New South Wales Government expert, Mr. Hadlington:—

> "A Leghorn cockerel was mated to six Leghorn hens and six Game hens. (2) A Game cockerel was mated to six Leghorn hens and six Game hens. The Leghorn cockerel was the son of a dam which laid 293 eggs in 12 months."

The result of the flock testing of the progeny from these matings was as follows: Leghorn-Game cross laid an average of 112.2 eggs per hen; Game-Leghorn, 117.4 per hen; Pure Leghorn, 193.5 per hen; Pure Game, 51.7 per hen.

It would have been interesting and helpful had the individual records of the progeny been available.

What are we to gather from these records? Are we to conclude that the sire was unable to transmit his dam's fecundity to the progeny of the Game hens, but was able to do so in the case of the Leghorns, because the genetical constitution differed? We suggest that the dam's fecundity was not transmitted in either case. What we think happened was this: The progeny of the Leghorn Game cross gave better results than the pure Game, because they partook of the physical constitution of the Leghorn male, which enabled them to give fuller expression to a character which they had inherited from their dams. In the case of the Game-Leghorn cross; what occurred was that the female progeny was unable to give full expression to the character (fecundity) which they had inherited from their dams because it was INHIBITED by the physical constitution of the Game male which they shared with that of their Leghorn dams.

We have never heard it suggested that a low fecund hen had a less perfect ovary or oviduct than a highly fecund one.

In effect then we have said that:—

(1) All hens are fecund

(2) The dam does not transmit her fecundity through her sons.

(3) That the degree of fecundity depends upon the physical constitution, which may be favourable to, or may INHIBIT its fullest expression.

(4) That the dam can transmit her fecundity to her daughters direct.

(5) That they do not inherit high fecundity, but only the power to give full expression to the character, fecundity.

It will be realised that the selection of the male would be as important as ever, as if his physical constitution differed widely from that of his mate, the daughters' production will vary widely, as they partake of the constitution of the dam or sire.

We admit these ideas have been very crudely put, and that they are *but* ideas, but we venture to think that the suggestion that the physical constitution may INHIBIT the fullest expression of a character which we believe to be racial, is an original one, and our readers may perhaps think it worthy of consideration and discussion.

TO READERS.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000- hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex.

The Financial Year begins on 1st September.

WARWICKSHIRE.

The County Poultry Federation is having a Stand in the Poultry Tent at the County Agricultural Show that takes place at Sutton Coldfield during the first week of September. Warwickshire Poultry-keepers are invited to make a point of visiting the Stand, so as to enrol as County Associate Members, and thus promote the best interests of affiliated local societies, also of Specialist Breeders of Utility and Exhibition Stock, as well as County Poultry Husbandry, through united good fellowship in association with the National Poultry Council.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

THE DEFINITION OF A PULLET.

"Dear Sir,—Reference your suggestion in 'Eggs' of August 6th, that 'a pullet shall become a hen in June of the year following the one in which she is hatched—thus a pullet hatched in April this year would become a hen for **selling purposes** in June next.'

May I ask if the month of June is fixed upon—how you propose calculating a pullet's first year for **laying purposes?**

I have always been under the impression that poultry-keepers judge of a fowl's laying merits by the number of eggs laid by her in her 'pullet year,' i.e., in the 12 months following the date upon which she laid her first egg.

Take the case of a pullet hatched in February or March, she is not likely to commence laying much before 1st August or 1st September, according to breed, and if the pullet year is to be reckoned to cease on 1st June, she will have had 10 or 11 months only for laying as a pullet.

If you are going to reckon a pullet's year as ceasing on 1st June, will it not mean that to be able to reckon a full 12 months' laying, a pullet must be hatched at least six months prior to that date? That is, during December of the second year previous, for I take it that, excepting in the case of light breeds, few pullets commence laying much before they are six months old, and hatching chicks in December pre-supposes the possession of an incubator, which is, I expect, not the case with hundreds of your members, myself included.

May I suggest that a pullet shall be reckoned to reach the status of a hen on 1st October of the year following that in which she is hatched, presuming that the hatching takes place after 1st January. This would give all pullets hatched up to 31st March of any year a chance of getting six months to commence laying and a full 12 months in which to calculate the number of eggs laid in their 'pullet year'; and would not, I believe, very materially affect their age for selling purposes.

I quite agree with Mrs. Chitty in her letter published in the issue of 20th of August, that an egg should be considered new laid up to three days after it is laid. I mean an egg laid on Monday should be considered new laid up till Wednesday and not beyond.

Yours truly,

H. R. BAKER, Lt.-Col."

The suggested definition was made because of the confusion that exists at the present time. If we take the present month the advertiser of pullets often means birds hatched in the previous year; the buyer is under the impression that he is buying birds hatched in the current year, which will come into production, say, in October. As utility breeders we generally accept the fact that when a pullet has passed through her moult she becomes a hen, but this definition would not be accepted in a court of law, and if we buy now birds advertised as "pullets" which were hatched in March, 1923, under the impression that they were hatched as pullets in 1924, we have no legal remedy. In reply to Col. Baker's question as to how we should calculate a pullet's first year for laying purposes if the month of June is fixed on, I cannot see what difference this would make, as it would not affect either buyer or seller. If a pullet is sold in June obviously her record is not complete, and the buyer would be aware of the fact. Although we may agree with the definition of new laid as suggested by Mrs. Chitty, the difficulty does not end there—in fact, it only really begins when the egg is offered for sale.

I take the following from an old book, published in 1865:—

WARMING POULTRY HOMES.

"On this subject I have had many enquiries, I will therefore endeavour to give my reasons why I prefer hot-water pipes fixed immediately under the roosting perches. Where stoves or open fireplaces are used the heat is concentrated, therefore the cold air rushes from all parts to that particular spot, which cold draughts are most injurious to the health of not only poultry but all animal life. In fact, these cold draughts are the cause of most diseases in England, where persons sit before an open fireplace and right in the current of the cold air. Coonsumption and colds of all descriptions could be considerably averted by a different mode of warming our houses; but, though the hot-water system is not applicable to our private dwellings, it is eminently so for a poultry house. The heat from the pipes is equally radiated from all parts of the building, and the pipes being immediately under the roosting perches it will not require the maintenance of so high a temperature as when the pipes are near the floor, where not so much warmth is required, as it is well known that whilst the body is in motion the natural heat is sufficient to keep us warm, but that as soon as the body is at rest or asleep the circulation of the blood becomes less active, consequently it cools sooner, as is evidenced by the fact that the clothes that keep us warm in action are not sufficient to protect us from cold during sleep. There is another consideration why I prefer the pipes under the roosting perches, it is because, being placed at mid-height of the roosting room they are between the heavy and light gases which are necessarily generated in all places where animal life is congregated."

At the Harper-Adams' Conference a speaker remarked that fowls did not want warm houses; all they needed was shelter. We cannot agree with this. Everyone knows that a very low temperature results in a drop in egg production. I believe that if it was possible to keep an equable temperature of, say, round about 60 degrees during the winter months there would be a great increase in egg production, and it would have the additional advantage that it would not have the same effect upon the nervous system of the birds that artificial light does.

It must be apparent to everyone that the bodily heat cannot be maintained during the long hours on the perch, and, in my opinion, this is one of the most fruitful causes of outbreaks of roup. In extremely cold weather everyone is aware that the birds huddle together for warmth, consequently for a time there is overcrowding, and the atmosphere must be very "fuggy," which is all conducive to diseases of the respiratory organs.

If the house could be kept at a temperature, as suggested, of about 60 degrees this huddling would never occur. There would not be this loss of bodily heat, and there would be a corresponding increase in the number of eggs.

It will, of course, be urged that warming the house is altogether unnecessary. Perhaps so, but we can at least build houses which will help to conserve the body heat, and it is quite possible to have a warm house and at the same time a well-ventilated one, and to have a cold house which is, at the same time, badly ventilated.

I had hoped that we should have been able to carry out some experiments in this direction during the coming winter months, and it may be possible to do so still. There will be no artificial warming of the house, but it would be simply double-boarded, to prevent the penetrating cold, and perhaps a thatched roof. The results would be compared with the birds kept in an ordinary house, but otherwise under the same conditions.

We heard a great deal a few years ago about the open-fronted house, and we were told it was going to be the real preventive of outbreaks of roup. Experience has taught us that it has entirely failed in this direction, and it is certain that many of these open-fronted houses are so constructed as to be conducive to roup and kindred diseases.

There is, at all events, plenty of room for the suggestion that we should construct houses in which the temperature will not fall to below freezing point. I am not advocating **warming** houses, but **warmer** houses.

FOUND IN THE LITTER.

I have received the following letter from Mr. Garry Wadsworth, which will be interesting and helpful to our readers:—

"Dear Sir,—During the past rearing season I have lost over a score of chicks through their picking up pieces of beech and sycamore twigs in the oat chaff with which they were littered. I had the chaff collected at the threshing last Autumn, and the fields in which the oats were grown are bordered by beech and sycamore trees. I post-mortem every casualty, and, of course, when one finds the gizzard impacted (and in three cases actually punctured) it is clear enough evidence of the cause of death. At first I suspected they were picking up the twigs in the run as the rearing ground is also surrounded by beech and sycamore trees, but when I had four cases inside a week in a flock that had never been out of the brooder house, and nearly six weeks old, I examined the chaff and found a number of twigs broken in pieces about 1½ inches long. Some of the cases were drooping and mopey for three or four days before death, others seemed to collapse during a night.

In view of the above experience, I shall certainly shun oat chaff as a litter for chicks in future, although I have it for the filling into bags.

Faithfully yours,
GARRY WADSWORTH."

NOTICE TO MEMBERS OF EAST DEVON BRANCH OF THE S.P.B.A.

The Migratory Poultry School (Instructor, Edwin Russell) will give a course of practical instruction in Artificial Hatching and Rearing, Egg Testing, Fattening and Marketing of Poultry, in the Parish Institute, Aylesbeare, commencing Monday, September 8th, 1924, at 3 p.m., when all intending pupils should be present.

Classes will be taken in the morning or afternoon for two hours, the time will be **definitely fixed at the first meeting to suit the majority.** The fee for the course is 2s. 6d.

At the end of the course a COMPETITION will be held and Prizes to the value of 30s. will be given. Certificates will also be awarded to those showing proficiency.

The public will be admitted to the school only at times when the class is not at work.

Names of intending pupils should be sent to Capt. Jelley. Broad Oak Poultry Farm, West Hill, Ottery St. Mary, from whom further particulars may be obtained.

FRAUDULENT ADVERTISEMENTS.

In our issue of July 9th I referred to complaints which had been received in reference to advertisers for eggs and poultry produce, and stated that the Council were anxious to take action in the matter if they could get the necessary evidence, and then went on to say: "We are now concerned with a firm in Worcestershire, and if any of our readers had any difficulty with them, we should be glad if they would send us the fullest particulars."

This morning I have a letter from Worcestershire in which my correspondent says he has received a letter from a poultry-breeder in that county who asks: "Who is the advertiser that Tom Newman refers to in 'Eggs'? The way he has put it does not appear to me to be likely to do Worcestershire any good."

I cannot see what I have said in any way affects either the Worcestershire poultry-breeders or poultry-keepers. They are not mentioned. It distinctly states: "Advertisers for eggs and poultry produce."

I am asked to try to "mitigate the aspersion in some useful way."

I do not know that there is anything to mitigate. As I said before, there was no reflection whatever on the breeder or poultry-keeper Certainly one realises there are quite as many keen and honest poultry-keepers in Worcestershire as in any other county.

Modern Poultry Feeding.

By TOM NEWMAN.

MR. TOOVEY'S LETTER.

I have received a letter from Mr. Toovey, which is given below. What a confusion of ideas exists. Mr. Toovey fed dry mash to supplement the wet. At Harper-Adams some speakers advocated wet mash to supplement the dry, and Mr. Meekings attributes his results to the fact that he fed, in addition to the dry mash, an ounce of the dry mash moistened with cold water. Palatability admittedly is an important factor in nutrition, but if a chick is reared on dry mash, it will not suffer on this account. Is it surprising that Mr. Toovey's birds left the dry mash "severely alone" when they had had a "sufficiency" of wet?

With regard to the dry mash being contaminated with dust, and its exposure to the atmosphere and becoming stale and insipid at the end of a week. The fowls will inhale enough dust, and the percentage which is likely to find its way into the hopper is not likely to greatly affect them. A dust bath does not appear to injure their health, and they must take of the dust into their mouths when enjoying it. Why allow a dry mash to be exposed to the atmosphere for a week? As to the prevalence of kidney trouble in poultry, I remember Mr. Toovey writing me on this subject some years ago. He then compared the dry mash fed hen to tipplers, who notoriously suffer from kidney trouble. May I suggest that in the case of the latter the trouble arises from the alcohol, and not from the fact that he drinks little and often, and that kidney trouble in poultry is induced by excess of animal protein. Will not Mr. Toovey admit that a horse takes all the moisture its body requires in the form of water? That the food of the stabled horse is generally crushed mixed corn and chaff and hay? There is no evidence that kidney disease is more prevalent with dry mash fed birds than with wet.

Sir,—My experience of dry mash feeding alone was, as you say, limited to six months, and quite long enough too, but previously for quite a long period, a year or two at least, dry mash was fed as a complement to wet mash—a very wasteful process, and after I stopped feeding dry mash alone it was continued as a complement to wet mash again. Then we found that if a sufficient supply of wet mash was given, the dry mash was left severely alone. We concluded that the birds should know best what they preferred, and probably also what was best for them. Dry mash feeding, to the general satisfaction of all interested in the prosperity of the farm, was discontinued altogether. I think you will admit that palatability is a most important factor in nutrition.

You refer to grain being fed dry. I am inclined to think that if it were practicable to slightly moisten hard grain until the moisture content was brought up to 20 per cent., which is often the moisture content of English wheat, it would be better for both digestibility and palatability, as birds, especially land birds, in a natural state live on moist seeds, and those of us who keep numbers of tame birds in aviaries, as I do, know that getting wild birds on to "dry seed" is always a critical period, and that cage birds, which I do not keep, often suffer from too much dry feeding. Again, dry grain, as fed to poultry in my

(Continued at Foot of Column on Next Page).

Dry & Wet Mash Systems of Poultry Feeding.

By E. J. MEEKINGS.

(Continued.)

You will accuse me of bald statements, and expect at least an explanation. My contention is that where dry feeding alone is practised, the dangers which I have enumerated will be prevalent. I do not criticise the ration, except where excessive fibre is used, but I do say that the best results cannot be attained by the most apt feeder thereby, and that in the hand of novices or careless farmers such a practice is a positive danger to the stock—undermining condition and perpetuating a heritage of weak progeny. The whole point is, you cannot get, either in summer or winter, your birds to consume sufficient dry feed—which means, therefore, a lack of essential nutrients. It is not easy for poultry to consume it; the glands become clogged, and water must be to hand to swill it down. Such a form of mixing the mash may save you labour, but it puts a heavy responsibility upon the hen. If she shirks it—and many thousands do—you lose eggs and your adult mortality is increased. I would rather lose her by fatty causes than by wasting or anaemic troubles. When you get to know the language of the hen you learn much. When I began to doubt the correctness of my feeding methods, I earned the respect of my hens! I changed my tactics—the mash fed dry was altered in one respect—the crude fibre content was lowered 50 per cent. in summer and 75 per cent. in winter. If a good sample of vegetable fibre was procurable, I used it in the place of cereal fibre. This was always before them. In addition, one ounce of moist mash of a slightly different mixture was fed at ten a.m. from April to August, and the morning grain ration stopped. Grass range was at their disposal from early morning. In the evening approximately one and a half ounces of grain per head was given, but due care was taken to observe appetite. It is essential to keep an edge on the hen's appetite.

From September to March the morning grain, a man's handful to three birds was resumed; the moist mash increased at ten to one and a half ounces, dry mash as previously stated, and a man's handful to two birds at night, or as much as one and a half ounces per head, if so required. The results were gratifying. My past two seasons have been beyond my expectations, both as regards steady winter egg production and rearing. I do not wish to assert that all trouble are nutritional—only a fool would use dogmatic phraseology of this sort—but I simply repeat my own experience for your consideration this afternoon. The poultry farmer who uses only moist mash and grain is, in my opinion, also applying a faulty method. You cannot each morning anticipate your flock's requirements. By my method and by close observation you feed a nourishing formula in an attractive way—the hen enjoying her grain and moist mash—she makes up with dry. Note she does not *fill up* with dry—that is not necessary under my method. To satisfy by moist mash and grain only, you have to feed grain *ad lib.*, and weigh off your mash, or, vice versa, and both are dangerous and uneconomic. Too much grain will mean a deficiency of animal protein and extra expense—overfeeding of moist mash will result in a possible excess of protein and certainly in loss of appetite, to say nothing of waste.

You will know of many examples to prove the desirability of either method. I agree that a measure of success is in the hands of the clever and ever-watchful poultry farmer. On the other hand, I can take you to many farms to-day where young stock are obviously under-nourished, and returns in autumn and winter eggs anything but cheerful. Some blame their poultryman—others the breeders I would rather analyse the feeding system, and I think I should in many instances prove my case. It should be a matter of LIVING not of mere EXISTING!

If a combination of dry and moist feeding involves more labour, and is in itself more expensive, the results obtained amply justify the means. It may not be so serious a matter to the egg farmer, but to the pedigree breeder it is of vast importance. There is an increasing demand for hatching eggs in the winter—you are increasing your demands on the hen; how does she stand it? If those eggs fail to give satisfaction it is a reflection, and, what is more, it is an expense which recoils on the breeder! To the breeder such a demand for early eggs is a disadvantage, but to the commercial man it means much. If your method of feeding is correct you will find it very much easier to supply those early eggs, and there will be less infertility and dead-in-shell.

I have made no exaggerated claims for dry or wet feeding. I have suggested a wise combination of both. Had I to choose between the two, I should go wet! I have no American blood in my veins. Extreme measures ARE useful on occasions,

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MODERN POULTRY FEEDING.—Continued.

case, contains more moisture than dry mash, as considerable evaporation takes place during grinding owing to the heat engendered, the loss may be from 2 per cent. to 4 per cent., according to the condition of the grain. Nature enfolds the grain in a covering that both preserves the interior from contamination and conserves both moisture and the aroma that rapidly disappears when meal is exposed to the air.

Dry mashes exposed to the atmosphere of a scratching shed for long periods, day and night, must become contaminated with the dust that always exists in modern poultry houses, and with the evaporation in dry weather always proceeding, must become at the end of a week somewhat stale, insipid, and foul concoctions.

I have read lately of the prevalence of kidney trouble in poultry. I have not, to my knowledge, suffered from this disease myself; would it not be as well to enquire whether it may not be inimicable to health, for the hen to be compelled to take the large amount of moisture she must have, in the form of water, rather than to be partly supplied with this necessary ingredient of eggs and for the purposes of digestion in moisture diluted in her food, moderately, of course.

I should not like to be compelled to take all the moisture my body requires in the form of drinks, I am sure you too, Mr. Editor, although there may be others who would not, will agree with me on this point.

Yours faithfully,
T. W. TOOVEY.

and in some countries—but, to my mind, the happy medium is the wisest course.

Do not forget the use of grain. It is a means of encouraging muscular activity, so necessary to the digestive organs. And endeavour always to use very well-ground meals, the finer the better, for the more rapid assimilation of the nutrients.

There is no BEST ration—and there is no definite amount. I have noticed a certain nervousness on the part of some poultry-keepers to avoid fats in almost any form. Is this not a mistaken idea? It seems obvious that fecund stock will very readily consume concentrated foods—foods rich in protein, carbohydrates, fats and minerals. They appear to digest very little crude fibre, though the latter, of course, is very necessary to excite the intestines—doing the work, as it were, of a broom, but containing very little "releasable" protein. Birds that have access to grass or to any of the vegetable kingdom, have abundant supplies of fibre at their disposal without additional heavy supplies in the mash. Experiments with fat-feeding have given most gratifying results, with no ill-effects to the birds. One is bound to admit that simplicity in feeding will yield as fruitful results as any of the most complicated menus yet recommended to the poultry public.

I have carried out many experiments on my own farm, and not the least interesting have been those connected with feeding. Simplicity in these little practical tests has been the ideal striven after. Resorting as I did to moist mashes, I was able to introduce foodstuffs which I could not have introduced into a dry mash. Tests were carried out to ascertain what bearing animal fats and beef scraps, together with fresh green bone, would have upon chick growth, egg production, fertility and rearability of chicks. These animal foods were added to the ordinary moist mashes in quantities of five per cent., bringing the total of animal food up to ten per cent. I found these animal proteins as successful as the milk proteins, and much more economical.

There is not time to elaborate here upon the results of these tests. Suffice it to say the effect has been such that the whole of the farm now receives its percentage of fresh animal food daily, so that I need not further emphasise the value of fresh green bone and meat scraps, foods very rich in ash and protein.

To SUM UP the outstanding points of my paper:—

That, in my opinion, the system of feeding is as important as the ration itself.

The dry mash feeding alone is an insufficient ration, the hen finding it impossible to maintain full bodily health, vigour and maximum output over a number of years without the use of other concentrated foodstuffs, or an excess of grain feed; which is uneconomic and deficient in protein.

That such troubles as hackle and full moult, a sign of loss of condition in pullets, a heavy mortality amongst adult stock, and last, but not least, a decided loss of stamina, apparent in the progeny both before and after hatching, are evils which are traceable to defective feeding methods.

That moist mash feeding alone does not conduce to ideal results, except under most expert supervision; the danger of over-feeding with this system, with all its subsequent effects upon the hen, being well known. It has the advantage, however, of being a more concentrated ration, in which fresh animal food, a very valuable protein, may be incorporated.

That a judicious combination of both dry and moist feeding, together with grain feeding, allows of no excess, either in bulky ration or over-feeding, and is a system which will enable the feeder more easily to control the appetite of the hen.

That there is urgent need for greater skill in the art of feeding, that resort to the system previously outlined obviates the use of artificial lighting to encourage egg-production.

That over-bulky dry feeding in the winter, when days are short and climatic conditions demand greater supplies of fats and proteins, is inimical to the life of a hen.

I now leave the field clear for the clash of arms between the Wets and the Drys! I have too much faith in the Old Country to imagine that she will follow our Cousins' example.

OUR "FRONT" COVER.

The photograph on our front cover is a January-hatched cockerel, bred from hen No. 216, the property of Miss Malcolm and Mrs. Pember, of the Wellingham House Poultry Farm, Ringmer, Lewes.

The record of his dam was 256 eggs in 54 weeks.

Miss Malcolm and Mrs. Pember are fully alive to the fact that hatchability is an inherited factor, and, moreover, that it is an economic factor of the first importance.

On consulting the card of No. 216 we find that in January she laid 26 eggs, in February 14, in March 23, in April 16, and in May 14. All these eggs were incubated, only one was clear, eight died in the shell, and one was broken, with the extraordinary result that 83 chicks were hatched, and all were reared. There was not a weakly chick amongst them. This bird's weight at the end of her pullet year's production was 5lbs., which is another little bit of evidence that birds fed on dry mash can be kept in full production, and at the end of a heavy laying season be in excellent condition.

We have been extremely interested in the cards sent us by the owners of 216. How very important it is that selection should be based on hatchability as well as the number of eggs laid, is evidenced by these cards. Thus we have hen No. 131. Of 22 eggs incubated two were clear, one was broken, and only ten hatched. Further, all the chicks were weak and small. One other thing, these cards reveal that a Leghorn hen should not be less than 4lbs. in weight, for there seems to be a direct connection between weight of the hen and hatchability of her eggs; or perhaps it would be more correct to state that a hen below a certain weight gives poor hatchability and weakly chicks Miss Malcolm and Mrs. Pember are paying particular attention to this point.

Goat-keeping & Poultry.

By Mrs. EPPS.

ARTICLE V.—FEEDING.

Animal nutrition is a wide subject—so much so that one branch alone forms a large part of the pages of this journal, and rightly so. If only one-tenth attention were paid to the subject as regards human beings, say, in the "Daily Mail," we should all be wiser and better beings, presuming that we read the "Daily Mail." And, furthermore, the public would not rest content with the scanty supply of goat's milk available. This I would say at the outset—the general knowledge of food values that every up-to-date poultry farmer possesses forms an excellent basis upon which to build up a knowledge of how to feed goats.

With the goat as the rich man's hobby, I have no concern, except, perhaps, for the purpose of condemnation, and the remarks that follow deal with feeding strictly from the point of view of the needs of the poor man's cow.

The important point to bear in mind when feeding a goat is that she is a ruminant, and requires to be always well filled with bulky food, with, at certain times, a supplementary ration of concentrated food. The more soundly a goat is bred, the better return will she give for her food. A breeder of some of the soundest and heaviest milkers in the country is an advocate of bulky foods, with very sparing use of concentrates. A lady who had acquired a goat from this herd told me that this year, after the animal kidded, she was fed for some months solely on hay and gave a gallon of milk daily. There are not many animals capable of this achievement, and probably the one in question would have done even better on a more forcing diet, but I do not advocate feeding goats in such a way that the last ounce of milk that can possibly be obtained is produced. It is so easy to lose sight of relative values, and the heavy mortality among the pedigree stock in this country is not a matter for congratulation, and is doing more to bring goat-keeping into disrepute than anything else.

Feeding (and breeding) for show purposes I strongly advise should be left to the wealthy amateurs who find this hobby so fascinating. What the poultry farmer needs is plenty of cheap milk for his young stock, and to read in the regulations of the Dairy Show that *those found giving milk to their goats* will be disqualified, should give the utility breeder a sufficiently broad hint that, if he is proposing to keep goats for profit, he had better refrain from show competition.

Hay should be the basis of a goat's ration during the time that there is no green fodder available, and can be supplemented by three or four good sized mangels or swedes daily. Turnips are not very satisfactory, goats seldom enjoy them, and the amount of nutriment contained in them is very small. If the animal is in profit, a ration of 1lb. oats and an equal weight of bran can be given, or a few handfuls of some

(Continued at Foot of Next Column.)

Ducks and Fowls.

A Comparison of Profit Making Qualities.

By BERNARD REDDAWAY.

There are some people who contend that laying ducks are more profitable than laying fowls, and at the first glance this seems to be the case; but it would be interesting to consider the matter from an unbiased point of view.

Duck eggs take one week longer to hatch than fowl's eggs, but against this it has to be remembered that ducklings need much less heat during their childhood, so that there is very little difference in the amount of fuel used for each, perhaps the duckling needs less than the chicken.

Then there is that important question to be considered, the disposal of surplus males. The drake has only to be kept for ten weeks, while a cockerel has, with the exception of most light breeds, which do not usually sell well, to be kept for about sixteen weeks. However, the drake usually manages to eat nearly as much as the cockerel, but as it does not require so much labour, it can be brought to table a little cheaper than can a fowl. Except early, however, a fowl will fetch a great deal more per pound than will a duckling, so that the cockerel is more profitable than the drake.

A duck comes into lay about two weeks earlier than a pullet of the same weight, but the rearing of a duck, including labour, which is greater on a duck than on a fowl, owing to its dirtier habits in its house, is considerably greater than the cost of rearing a pullet, so that despite the fact that the duck comes into lay earlier it is a lot cheaper to raise a pullet to six months of age than to raise a duck to the same age.

It is supposed to be cheaper to house a duck than a fowl, but most ducks will pay better if given a good house, and a £10 house will usually outlast quite three £5 ones of the same size.

GOAT-KEEPING AND POULTRY.—Continued.

good brand of flaked maize is useful. Here the same remark applies that we read so often in advice on poultry feeding—use only good oats and broad bran. Good oats are seldom retailed crushed, but if crushed oats are preferred, a sample should be chosen, and instructions given to have them crushed.

Every goat varies somewhat in her requirements far more than is the case with birds, and observation on the part of the owner is the only guide as to what a goat requires. I would remark that goats are wasteful and dainty feeders, and need to be kept in check, for if one lets a goat please herself as to her ration, she will shamelessly consume many pounds of plump oats at a meal, and the consequent suffering will in no way cause her to see the error of her ways. I advise the admixture of bran with all concentrated foods, for by this means it is difficult, if not impossible, for even a greedy goat to overeat.

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It is cheaper to trap-nest a duck than a fowl, but as only about five ducks can be run with one drake, more breeding pens have to be used, but as a good drake will very often outlast two cockerels, only about the same number of male birds has to be used.

Of course, the laying life of a duck is about a year longer than that of a fowl, so the replacement costs are less, but as more fowls can be run to the acre, and old hens sell much better than old ducks, things are very equal altogether in these respects, although, perhaps, the duck has some little advantage.

Now the deciding question is: Can a good flock of ducks average more eggs in a year than a good flock of fowls? Of course, they have to lay a few more to pay for the extra food they eat and the extra labour expended on them for meal mixing and house cleaning. To pay that difference they would have to average about ten more eggs in the year.

It must always be remembered that ducks do not like to be run in big flocks, because they get frightened so easily, and as in so many cases it is necessary to run them in big flocks, the maximum number of eggs is not obtained from them. Also there is slightly more evenness of production from fowls. In a flock of ducks it is more usual to find the best birds laying round about 300 eggs, and the worst about 120 eggs in the year than it is in a flock of fowls.

Undoubtedly it is harder to get winter eggs from ducks than it is from fowls, although when a duck is persuaded to lay in the winter it does it better than most pullets.

A duck eats a lot more than a fowl, but all things considered, the higher price obtained for their eggs and the slightly higher flock average which they give pays for the extra food they consume.

It costs less to pen a flock of ducks in than it does to pen a flock of fowls, because they only have to have three to four foot netting, while a fowl cannot be kept in with lower than six foot netting.

On the whole, perhaps, good ducks do pay a little bit better than good fowls; but it is, every thing considered, a very moot point; but owing to the extra land required for them, and the greater difficulty in hatching them artificially, it would be very unwise to keep only ducks even on a farm, and their dislike of being confined makes their keeping in any numbers on the smallholding or in the back-yard an impossibility.

Every poultry-keeper, who has the land, would be well advised to keep a few ducks, as their management and breeding is not only profitable but also interesting.

80, Cobden Street, Walsall, Staffs.
25-9-23.

Dear Sir,—I would like to add my personal thanks to your good self for the instructive articles you write and publish from time to time in "Eggs," which have made the keeping of poultry much more enjoyable and also profitable, especially for the backyarder and small man generally.

Again thanking you for past help, and hoping you will be able to keep on the good work.

Respectfully yours,
(Signed) E. O. MORRIS.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

L. K. P. (Cobham). Your wet mash of half bran and half middlings is not good enough for your forty R.I. Red pullets. Although they have an unlimited run at the present time, it will not produce eggs during the winter. I would suggest that you give them the following mash:—Two bran, four middlings, one maize meal, one Sussex ground oats, and one meat and bone meal or fish meal. This should be always before them, and the usual feed of grain given in the litter. It would be advisable to put them on this mash at once.

M. M. S. (Market Deeping). We cannot reply to non-members of the S.P.B.A. by post unless a fee of 2s. 6d. is paid. A good dry mash for your birds would be: 2lbs. broad bran, 4lbs. middlings, 1lb. maize meal, 1lb. Sussex ground oats, 1lb. meat and bone meal or fish meal. This should be kept always before the birds, and, in addition, they should be given grain in the scratching litter. I do not consider dry mash any better for breeding stock or laying hens. The results on dry mash and wet are the same. Everything depends upon the human factor, as to whether one system or the other would be the more successful.

Oakdene (Rosettenville). Only one-half your letter was enclosed, and as there was no signature it was quite impossible for me to write to you. Yeast, in whatever form it is sold, cannot be regarded as a forcing food, neither is it comparable, as stated in the cutting, with condiments or spices. While I quite agree with what the writer of the article says as to the injurious effects of spices and forcing foods for reeding stock, yeast does not come within that category. On the contrary, its protein is of the highest value. It is rich in vitamin B., and has a tonic value which assists in the better assimilation of other foods. To speak of it as a spice is a very great mistake. I do not think it would pay you to use it at a cost of about £2 per ton. Whether you could get the ordinary yeast, such as we use here, at a lower price, I cannot say. It must not be regarded as a substitute for green food, and if you are able to get alfalfa or lucerne and all the ordinary meals, you will have plenty of the B vitamin without resorting to yeast for it.

A. J. (Chester). Yes, the size of house you mention would be large enough for a 50-chick size hover. You must be very careful to see that there are no floor draughts, as from this cause there is often a very high mortality.

A. L. (Basingstoke). I cannot tell you a book which gives the full analysis of poultry foods used, both common and uncommon. The most useful book for you would probably be Henry and Morrison's "Foods and Feeding." This gives a complete analysis of the composition of foods and all the digestible constituents, and also the analysis and mineral content of some of the grains and meals, but only very few of them. I know of no book which would give you a full analysis ncluding minerals, etc.

P. B. (Bedford). The sample you send is green bone and not bone meal. They are two totally different hings. This you could use in the mash in place of ish or meat meal, in the same proportion. The egg you send is a beauty, and it is worth while to breed cockerels from this hen, provided that she can get a high enough standard. I would not do so unless she exceeds 200. The better mating would be the Boucher cockerel, but you must have him from a dam with a sufficiently high record.

A. H. (Aberdeen). The sample you send is not "Sussex" ground oats, nor is it anything like it. This s simply a coarsely ground oat. It would answer the purpose of S.G.O., and you might use it in the same proportion in the mash, but may I repeat what I have aid so many times, that the real "Sussex" ground at has almost the consistency of flour, and that if you rush it between your fingers it will cling together as lour does. Except that the mineral content would not e quite so good, you could use oatmeal in place of he S.G.O.

W. M. B. G. (Co. Derry). The sample you send is air, as far as the ingredients go, but as a formula it s wrong, because there is a deficiency of the caronaceous foods. I would advise you to add another pound of maize meal, as this is for your laying hens, nd reduce the bran to one pound. You have misnderstood what was written in the pamphlet. I am fraid I cannot help you to prevent their going into a partial moult if they have come into lay now. The nly thing is to feed them up well, and keep them in ondition. I am glad to know that the pullets have come along so splendidly on the formulas which I have given you, and that you think "Eggs" is far better than any other poultry paper. Nearly everybody does who has read it. With regard to the grain mixture, for the winter months I would advise you to feed equal parts kibbled maize and wheat.

A. R. (Manchester). In reply to your letter. Between the two samples of meat meal there is very little to choose, but I do not think No. 1 is worth the extra 2s. 6d. per cwt. No. 2 is quite a good sample.

L. D. (———). In reply to your letter, *re* bedding for intensive houses. You could use dried leaves and earth, but neither earth alone, sawdust alone, or sand alone would be sufficient. There is nothing to beat straw. I should hardly think it would require renewing every month unless your house is damp.

"Madame" (Lichfield). The sample of mash you enclose is very good and good value for the money. You could use it as a wet mash if it was mixed to a very dry crumbly condition, but it would not answer if it were at all sloppy. The sample of meat meal is also a good one, and quite good value for the money.

P. S. C. (West Bromwich). With reference to your pullets which are passing blood. I wish you had sent me samples of your meals. The best thing would be to reduce the bran to 2 lbs., be sure that the S.G.O. are finely ground, and do not contain a lot of fibre, and also replace the fish meal with a good sample of meat meal. I think that the hen which has laid the four shell-less eggs is in an over-fat condition. Stop mash feeding for the time being, keep her perfectly quiet, and she may get right. A little Epsom salts would help her. Feed mainly on good white oats.

POST-MORTEMS.

H. B. B. The post-mortem examination of the fowl showed the cause to be pneumonia caused by the fungus aspergillus fumigatus. It is remarkable that this bird showed such slight symptoms before death as the left lung was practically destroyed by the fungus. Treatment of the individual is hopeless, but energetic disinfection of houses and runs will help to prevent spread, and a tonic, such as one dram of sulphate of iron in each gallon of drinking water, will help to tone the others up and raise their resistance to the disease.

L. D. The objects received are not pathological growths but merely enlarged lymphatic glands, showing a hyper-activity, and might be due to high living.

R. F. D. The post-mortem examination of the W. Leghorn pullet, leg No. 356, showed the cause to be obstruction of the bowel, due to one portion of the intestine telescoping into the portion below for a distance of about three inches. Indigestion followed by spasm of the intestines is the most common cause of this condition, but cases frequently occur for which no cause can be assigned.

I. L. We have made a post-mortem on the Ancona hen, and find the cause to be generalised tuberculosis. This is, as you know, an infectious disease, and will require energetic measures to stamp it out. Suspected subjects should be killed and the bodies burnt, the premises very thoroughly disinfected, and the land where possible turned over and dressed with lime and soot.

W. H. C. Post-mortem examination revealed a decomposed egg and a number of tumours of various ages, the pressure of which caused inflammation of the uterus and peritonitis. It is quite usual for fowls with fatal lesions to appear well until toxins enter the circulation and induce coma, as in this case. The condition was such as often results from high feeding and great productivity, but is not infectious. Her associates might with advantage be fasted for twenty-four hours and given a few morning saline doses, such as a teaspoonful of Epsom salts to each half dozen birds.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

DUCK QUERY.

C. E. R. (Derbyfields). (1) The matings for your ducks as described in your letter are quite in order, and you can hardly do better, but the young ducks should be at least ten months old before you breed from them. (2) Your older ducks will now be moulting, and if you want to bring them on to lay early in the autumn you should feed them a little more generously. One feed of corn is not sufficient to promote condition for egg production after moulting, even though they have a good range. You should give them a small feed of wheat and cracked maize in the morning and as much mash as they are greedy for at night when they return from range:—Mash: one bran, three middlings, one S.G.O., half fish meal (all parts by weight).

SEYMOUR SHAW.

BRIGHTON STOCK TEST REPORT FOR JULY, 1924.

Heavy Breeds' Section. (Total Eggs to Score).—R. Mummery (9 W.W.), 1324; W. F. Morris (12 W.W.), 1546; Countess Buxton (5 W.W.), 752; Mrs. Crooke (4 W.W.), 617; W. Crabtree (10 W.W.), 1501; Brighton (8 W.W.), 987; Craig Gallon (8 R.I.R.), 864; McLeod (9 R.I.R.), 1395; Mrs. Russell (6 R.I.R.), 770; R. Saunders (7 R.I.R.), 1051; S. Simmins (10 R.I.R.), 987; Capt. Woodford (14 R.I.R.), 1549; Capt. Tomlinson (9 R.I.R.), 1197; Miss Clark (10 R.I.R.), 1078.

Light Breeds' Section. (Total Eggs to Score).—Bradbury (14 W.L.), 2132; Craig Gallon (15 W.L.), 1826; E. Coles (10 W.L.), 1611; Chisbury P.F. (17 W.L.), 2045; Stanley Street-Porter (18 W.L.), 2599; B. Glendenning (17 W.L.), 2047; Mrs. H. Kent (18 W.L.), 1463; Sweet Escott (19 W.L.), 2246; David Brown (18 W.L.), 2226; Amsden Bros. (17 W.L.), 2274; D. Gunston (16 W.L.), 2369; Miss Maddison (18 W.L.), 1804; Miss Ransford (14 W.L.), 2180; Court Farm (17 W.L.), 2114; Court Farm (13 W.L.), 1682; Brown's P.F. (9 Ancona), 1124; Mrs. A. Stuart (10 B.L.), 1396.

JOHN H. DOWDEN, Heathfield.

GLOUCESTERSHIRE MONTHLY REPORT.

EGG-LAYING TEST.

The following report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping) for the eleventh month ended August 8th:—

During the month 4,470 eggs have been recorded against 5,024 the previous month, giving a total of 51,402 eggs for the eleven months, and a pullet average of 169 in respect of 304 birds entered.

In the light breeds (professional) Mr. G. B. Metcalfe leads with the splendid average of 207.4 per bird. The leading pens in the heavy breeds (professional) average 203. The leading pens in the amateur section, L.B. and H.B., average 196 and 186.8 respectively. The single pen sections have all done exceedingly well.

Will competitors please note that the test (with the exception of the pen duck section) will end on Friday night, September 5th, and crates should be sent or conveyed to Messrs. A. M. and R. A. Johnson, Laying Test Ground, Chalford (G.W.R.), on or before this date. Competitors' early attention to this matter will be appreciated.

Free particulars with regard to the 1924-25 test may be had on application to the Hon. Secretary. Entries close August 31st.

Section A.—Light Breed (Professional). Five birds constitute a Pen).—G. B. Metcalfe, 4607 pts.; Major J. G. Dugdale, 4564 pts.; H. T. Godber, 4285 pts.; Hinton P.F., 4249 pts.; Coaley P.F., Ltd., 4247 pts.; J. L. Brown, 4086 pts.

Section A.—Heavy Breed (Professional).—T. L. Davies (W.W.), 4472 pts.; H. W. Fowles (W.W.), 4360 pts.; P. S. Beales (W.W.), 4182 pts.; G. B. Metcalfe (R.I.R.), 3959 pts.; W. R. Partridge (W.W.), 3782 pts.; J. Loder (W.W.), 3769 pts.

Section B.—Light Breed. (Confined to owners of not more than 50 laying head).—Miss M. Brown, 4164 pts.; J. A. Hall, 3938 pts.; K. Wilson, 3278 pts.; Mrs. D. Japp (B.L.), 2965 pts.; J. D. Crewdson, 2743 pts.

Section B.—Heavy Breed. (Confined to owners of not more than 50 laying head).—Maisemore School (W.W.), 4110 pts.; L. Grist (W.W.), 3911 pts.; C. G. Young (R.I.R.), 3573 pts.; Miss M. Lawrence (R.I.R.), 3264 pts.

SINGLE PEN SECTION.

Section 1.—White Leghorns.—Misses Ransford (12), 1071 pts.; Major J. G. Dugdale, 1010 pts.; Misses Ransford (2), 955 pts.; Misses Ransford (5), 932 pts.; L. Grist, 929 pts.; J. E. Boyd, 898 pts.

Section 2....White Wyandotte.—W. R. Partridge (23), 1060 pts.; Philip Clapham, 1010 pts.; W. R. Partridge (18), 949 pts.; W. O. Garbutt (25), 946 pts.; Lord Sherborne, 851 pts.; Miss H. Baylis, 810 pts.

Section 3.—Rhode Island Red.—F. W. Clifford, 940 pts.; A. Daunton (44), 921 pts.; Miss M. Lawrence, 869 pts.; A. Daunton (32), 805 pts.; Miss H. Reed, 781 pts.; J. N. Horne, 577 pts.

Section 4.—A.O.V. Light Breed.—G. B. Metcalfe (B.L.), 922 pts.; H. S. Hitch (Ancona), 913 pts.; A. Daunton (Ancona), 836 pts.; H. L. Lemon (B. La Bresse), 827 pts.; M. A. Greenway (B.L.), 786 pts.; L. Grist (Ancona), 770 pts.

Section 5.—A.O.V. Heavy Breed.—Major J. G Dugdale (L.S.), 1115 pts.; Miss M. Lawrence (B'Veld), 919 pts.; Mrs. E. Weinholt (Aus. Orp.), 889 pts; J. L. Brown (L.S.),, 873 pts.; Miss H. Reed (L.S.), 869 pts.; F. R. Welch (L.S.), 797 pts.

Section 6.—Ducks.—Mrs. E. Weinholt (K.-C.), test score, 211; Mrs. A. Japp (W.R.), 209; W. R. Partridge (8), (W.R.), 202; Major J. G. Dugdale (K.-C.), 199; W. R. Partridge (10), W.R.), 193; Sherborne Park P.F. (K.-C.), 192.

Pen Duck Section. (Four ducks constitute a pen). Report for 10th month ended July 25, 1924.—Major J. G. Dugdale (K.-C.), test score, 735; Bradley Agricultural School (K.-C.), 715; G. H. H. Simmons (K.C.), 608; D. C. Herbert (K.-C.), 583; F. L. Walters (W.R.), 569; Miss M. Lawrence (K.-C.), 538.

(Signed) R. A. and A. M. JOHNSON,
The Cotswold Poultry Farm, Chalford.
H. S. WRIGHT, Hon. Secretary, Shire Hall, Gloucester.

MALPAS UTILITY POULTRY CLUB LAYING TRIALS.

TENTH REPORT.

We regret to report the death of No. 177 (cause of death Peritonitis). Apart from this the health of the birds is satisfactory.

Egg production has again been good, broodiness is slacking off, and we have had very few moulting so far.

We have now arrived at the critical time for those who are in the front row.

It will be noticed that some of the leaders are not laying quite so fast, and a few that have been running close behind are catching up.

There has been a few changes among the leading birds in almost all sections, and with only a few eggs separating them, it is still very difficult to say which bird is likely to come out on top.

(Signed) A. WHITE.

SUMMARY OF LEADING PENS.

White Leghorns.—1. Mrs. Warwick Rogers, 187 eggs; 2, Mrs. Campbell-Muir, 183 eggs; 3, Mr. C. L. Crosse, 177 eggs.

A.O.V. Light.—1, Capt. and Mrs. Jarmy, 186 eggs; 2, Capt. and Mrs. Jarmy, 172 eggs; 3, Mrs. W. Probin, 165 eggs.

White Wyandottes.—1, Mr. W. H. Robinson, 203 eggs; 2, Mr. T. H. Kemp, 197 eggs; 3, Mr. G. Whalley, 186 eggs.

A.O.V. Heavy.—1, Mr. E. N. Paterson, 221 eggs; 2, Mr. H. H. Lloyd, 216 eggs; 3, Mr. E. Bowles, 177 eggs.

Correspondence.

PREVENTION OF DISEASE.

To the Editor of "Eggs."

Dear Sir,—The following paragraph from Capt. Rice's paper, read at the Harper-Adams' Conference, did not appear in your report last week, and may be of interest:—

> "Some of you may be aware of a lengthy discussion which took place recently regarding the value of vaccines and serums. I refer to the matter only because the final opinion, erroneous in my view, was expressed that these specific agents are not yet effective for poultry. A certain experiment carried out in America with roup vaccine, one of the many failures before success, was quoted, and held to disprove the value of vaccination generally. While there is no vaccine against roup with a 100 per cent. efficiency, *there are some which have preventive value, and their use can be advised.* . . . . While I ask you to believe that vaccines and other specific aids must play an important part in the campaign against disease, they cannot play the whole part. They can never be more than *valuable adjuncts* in a system which should rely mainly on proper breeding and management."

Yours, etc.,
FAIR PLAY.

Our correspondent's nom-de-plume suggests that we had purposely suppressed this part of Capt. Rice's paper because of the views we had previously expressed in these columns as to Vaccines and Serums. The report was not a verbatim one, and in reference to this particular question was as follows:—"Vaccines and Serums will play an important part in the campaign against disease. They cannot play the whole part, but they may be a useful adjunct." That, at any rate, conveyed Capt. Rice's opinion as to their value. As we did not see his paper, we are not certain as to whether he said MAY or MUST, but accept the latter as correct.

Moreover we maintain that Capt. Rice was in error in saying "A certain experiment, carried out in America, was quoted and held to disprove the value of vaccination generally." Several other reports were quoted which led to the conclusion that they were unreliable, and the conclusion was based on these, and not on the one mentioned above alone. We are dissatisfied with laboratory tests, and re-call that Sir Stuart Stockman said that a "field test" was the only reliable one, and suggests that reliance can only be placed in a field test. As "Fair Play' is interested in the sale of vaccine and serums, we ask him to consider the following proposal:—Fifty hens shall be inoculated. They shall be divided into two flocks of 25 each, the one flock in an ordinary lean-to house, the other designed on the most hygienic principles, which shall be acceptable to "Fair Play." At the end of six months, birds suffering from diphtheritic roup shall be introduced into each flock. We shall then see whether immunity is secured by inoculation. If "Fair Play" will agree to this proposal, we will subscribe ten guineas towards the cost of the test, which must take place in this country. The results shall be published in these columns, and whatever they may be we will promise to make no comment on them. "Fair Play" shall decide as to what vaccine shall be used, shall inoculate the birds himself, the only proviso we make is that no precautions shall be taken other than would be the case if the inoculation took place on an ordinary farm. As he himself has faith in vaccines and serums, and is interested in them commercially, he must realise what a magnificent advertisement such a test would be, and should regard the financial outlay as a very sound investment. We must point out to him that we have nothing to gain by this proposal, and that it is a perfectly straightforward one. Whatever decision he may arrive at, the **discussion** on vaccines and serums cannot be re-opened.—(Editor).

COMMUNITY POULTRY FARMING.

To the Editor of "Eggs."

Dear Sir,—I have read with great interest the article in "Eggs" of August 13th on Community Poultry Farming, taken from the "Canadian Poultry Review."

In my opinion Co-operative Poultry Farming is the only solution to the egg industry. Would you kindly furnish me with the address of either Mr. G. W. Miller, the originator, or the address of the "Canadian Poultry Review."

A few months ago there appeared in "Eggs" at the close of a very heated controversy—"'50,000 Egg Farms," a letter pointing out the only solution, i.e., Community Farming. The subject was taken up by one or two well-known poultry farmers. Then, as far as "Eggs" went, it semed to drop. Has the idea been put into practice? If so, I would be obliged if you could put me in touch with either the originator or the directors, if such has been formed.

Yours faithfully,
A. B. WHEELWRIGHT.

The idea so far as we are aware has not been put into practice.—(Editor).

TABLE POULTRY.

To the Editor of "Eggs."

Sir,—I am engaged in this industry, in a small way to start with, and my first lot of 96 Light Sussex chickens will reach 16 weeks of age on 4th October next, on which date I want to dispose of them as table birds, and, of course, to the best advantage.

My birds will average 4lbs. in weight on 4th October, and possibly will be heavier.

I read "Eggs" weekly, and have cut out and filed the articles which have appeared therein from Mr. A. V. Clarkson.

I read in "Eggs" to-day that the "bottom has practically fallen out of the London Poultry Market."

Dead poultry (per lb.), Fowls, Surrey, are stated to be fetching 1s. 9d. and 1s. 4d. a lb.

Would Mr. Clarkson advise that I kill and pluck my birds, and send them up to the London market?

If I kill and pluck my birds, and they weigh 4lbs., am I likely to obtain 1s. 9d. a lb. from a London dealer?

I have never before dealt with such firms, and am told that they cannot be relied on, but I do not know if this opinion is correct.

Alternatively, I have recently been told by a neighbouring poultry farmer that he knows of a dealer or higgler, who will buy my birds alive from me on the ground, and pay, therefore, market prices, which would, of course, save me the trouble of killing and plucking them.

I am very naturally anxious to obtain the best result from this, my first venture, after which I shall better know how to continue, and to increase, as I shall wish to do, my turnover.

I shall be very grateful for any advice that you and Mr. Clarkson can give me.

Yours truly,

"NOVICE."

August 27th, 1924.

LIVERPOOL BRANCH OF THE S.P.B.A.

To the Editor of "Eggs."

Dear Sir,—As I have ascertained there are far more readers of "Eggs" in Liverpool than there are members of the Liverpool Branch of the S.P.B.A., I do not think they appreciate the many advantages of their becoming members.

Entries for our Single Pullet Laying Test, Heavies, Lights and Cross-breds, will finally close the second week in September. Entries to be sent to B. O. Crosthwaite, Uplands, West Derby, or to the Secretary, R. J. Thomas, 9, Grey Road, Walton, Liverpool.

Some of the advantages are:—Monthly meetings, addressed by such experts as Tom Newman, Mr. Meekings, Mr. Brooksbank, etc., who give helpful advice on all Poultry subjects, Egg Shows between members, etc., etc.

D. HODGINS, Chairman.

GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG LAYING TRIALS.

LOWER HOUSE FARM, LLANTWIT MAJOR.

Report for 11th Month.

Heavy Breeds.—1, J. Joshua, Tondu (R.I.R.), 578 eggs; 2, J. Joshua, Tondu (W.W.), 601 eggs; 3, Eaton and Poor, Pontardawe (W.W.), 571 eggs; 4, J. H. Williams, Pontardawe (W.W.), 534 eggs; 5, T. Rees, Ystrad Mynach (W.W.), 561 eggs; 6, Howell and Phillips, Barry (R.I.R.), 440 eggs.

Light Breeds.—1, Howell and Phillips, Barry (W.L.), 565 eggs; 2, D. A. Hann, Pengam (W.L.), 682 eggs; 3, C. Spiller, St. Fagans (W.L.), 667 eggs; 4, C. Spiller, St. Fagans (W.L.), 610 eggs; 5, R. J. Evans, Abertridwr (W.L.), 644 eggs; 6, J. R. Thomas, Barry (W.L.), 567 eggs.

			Dry Mash.		Wet Mash.
	Per cwt.	lbs.	£ s. d	lbs.	£ s. d.
Wheat	12/6	224	1 5 0	224	1 5 0
Oats	12/0	196	1 1 0	196	1 1 0
Sharps	10/1	188	0 17 0	204	0 18 4
Bran	7/9	94	0 6 8	102	0 7 1
Maize Meal	12/6	47	0 5 2	53½	0 6 0
S.G. Oats	14/-	47	0 5 11	52	0 6 6
Fish Meal	21/3	38	0 7 0	41	0 7 10
			£4 7 9		£4 11 9

Cost of food per week (Dry Mash), per bird: 2.27d. Cost of food per week (Wet Mash), per bird: 2.39d. Dry Mash consumed per bird per day: 2.04 ozs. Wet Mash consumed per bird per day: 2.25 ozs. Dry Mash birds laid 846 first-grade and 488 second-grade eggs. Wet Mash birds laid 765 first-grade and 491 second-grade eggs. Cost of food per egg, Dry Mash: .86d. Cost of food per egg, Wet Mash: .88d.

C. F. DUNKLEY, Manager.

The Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Tingle, Herbert, 49, Church Street, Keighley.
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Jackson, W. H., Roberttown Poultry Farm, Roberttown, Liversedge, Yorks.
Bellamy, R. S., Row House, Wereham, Norfolk.
Phillips, D. F., Langston, Kineton Road, Olton, Warwickshire.
Johns, J. H., Wheal Buuson, St. Agnes, Perranporth, Cornwall.
Vignaux, Les. W., River View, Shrewsbury Lane, Shooters Hill, S.E.18.
Jewell, Mrs. K. S., Holly Nook, Sarisbury Green, Near Southampton.
Tebbutt, P. D., The Walnut Trees, Bluntisham, Nr. St. Ives, Hunts.
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Madin, Miss M. T., Park Hall, Bromsgrove, Worcester.
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Whitlow, Philip S. N., The White House, Bedfont, Feltham, Middlx.
Abraham, Arnold B., "Frondez," Mynyddbach, Landore.
Vickery, G. A., Moeder Mie Hotel, Brasschuet, Liz Anvers, Belgium.
Cheetham, J., Lowes Hill Fields, Ripley, Derbys.
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Logan, Maj. E. D., Weir Cottage, Wargrave, Berks.
Ibbitson, T. E., Heather Field, Yeadon, Nr. Leeds.
Wilson, R. B., Spring Cottage, Boston Spa, S.O., Yorks.
Marshall, J. Stewart, Logie Muirhead, Logie Kirriemuir, Forfarshire.
Davidson, Mrs. M. A., 41, Thornhill Gardens, West Hartlepool.
Darley, Col. J. R., Trory, Ballinamallard, Co. Fermanagh, N. Ireland.
Mills, G. (Junr.), Barton in Fabis, Notts.
Gold, Alfred J. M., Avonlea Pekingese Kennels, Luddendenfoot, Yorks.
Trenance, E., Colvase Gardens, Menheniot, Cornwall.
Adcock, Wm. L., Gymyrd P. Farm, Conway.
Webber, N. W. H., Lunds, St. Kew, Wadebridge, Cornwall.

IMPORTANT NOTICE.

Members are reminded that the financial year of the S.P.B.A. terminates on August 31st. All subscriptions are due as from that date.

The subscription is a MINIMUM one of five shillings per annum. Members are invited to add one shilling to their subscription for the funds of the National Poultry Council, which is doing excellent and urgent work.

The names of members whose subscription is unpaid by October 15th will be received too late for insertion in the Annual Register.

The rules of the Association provide that three members of the Council retire annually, but are eligible for re-election.

Nominations for membership of the Council should be forwarded to the Secretary not later than Wednesday, September 17th.

The Annual Register will be published in December, and a copy sent to all members whose subscription has been paid.

Members who desire to register their birds should send for registration forms at once to the Revd. H. Mudie-Draper, 25, The Chase, Clapham, S.W.4.

Members who desire to have the S.P.B.A. badge should send one shilling with their subscription.

ALTERATIONS OR CORRECTIONS OF ADDRESS SHOULD BE SENT TO THE HON. SECRETARY AS SOON AS POSSIBLE.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 29th AUGUST, 1924.

GRAIN AND FEEDING STUFFS.—The wet weather has been against harvesting and threshing operations, and in consequence there have been relatively small offerings of new grain on the markets. Wheat is rather cheaper, London reporting an average of 12s. 3d. per cwt. The bulk of the malting barley offered so far is rather poor in colour, but sells fairly well at 13s. 9d to 15s. per cwt., while good samples are readily disposed of at 16s. Feeding samples of barley are in good request and firmer at 12s. to 12s. 6d. per cwt. Oats also lack condition at present, but meet a steady sale at from 8s. 8d. to 10s. per cwt. Demand for imported wheat is quiet and prices are again lower on the week, No. 1 Manitoba averaging 13s. 11d. per cwt. against 14s. 4d. last week. Imported barley and oats are very firm, demand being good and supplies short. Maize is a stronger market for both prompt and forward delivery. Bran remains scarce, but holders are offering more freely and a reduction of 10s. per ton is recorded at Liverpool. Middlings also have an easier tendency. Demand for meals is maintained and prices continue to advance. Linseed cakes are in fair request and prices are firm, while cotton cakes are scarce, and fully maintain recent quotations.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s.; Hull, £7 7s.; Liverpool, £7 10s.; London, £8. Broad Bran: Hull, £8 17s.; London, £8 17s. Middlings, Coarse (British): Bristol, £11 2s.; Hull, £10 5s.; Liverpool, £9 10s.; London, £9 10s. Pollards (Imported): Bristol, £9 5s.; Hull, £7 15s.; Liverpool, £8; London, £8 7s. Rice Bran: Bristol, £8 10s.; Liverpool, £8 10s. MEAL.—Barley Meal: Bristol, £13 5s.; Hull, £12 15s.; London, £13 5s. Maize Meal: Bristol, £11 5s.; Hull, £10 8s.; Liverpool, £10 12s.; London, £11 5s. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 15s.: London, £11. Maize Gluten Feed: Bristol, £11 15s.; London, £10 7s.

EGGS AND DEAD POULTRY.

Eggs are less plentiful, and nearly all descriptions are dearer. Dressed poultry is in only quiet demand, although some improvement is reported in London and quotations are a shade higher.

Week-end prices—Eggs (per 120):British, 18s. 6d., 17s.; Irish, 16s. 6d., 16s.; Danish, 19s., 16s.; Italian, 16s., 15s.; Dutch, 19s. 6d., 17s. 3d.; Belgian, 17s. 3d., 16s. 6d.; Russian, 12s., 10s. 6d.; Chinese, 13s., 10s. 6d.; Lithuanian, 15s. 6d., 13s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 9d., 1s. 4d.; Irish, 1s. 3d., 1s. 0d.; Others, 1s. 7d., 1s. 2d. Ducks, 1s. 2d., 1s. 0d.

EGGS.

Per Doz.—Ashford: First, 2s. 5d.; Second, 2s. 3d. Birmingham: First, 2s 0d.; Second, 1s. 9½d. Bridgwater: First, 1s. 11d. Carlisle: First, 2s. 0d. Chelmsford: First, 2s. 3½d.; Second, 2s. 0½d. Denbigh: First, 2s. 2d.; Second, 2s. 0d. Derby: First, 1s. 11d. Dorchester: First, 2s. 2d. Exeter: First, 2s. 0d. Hereford: First, 1s. 9d. Ipswich: First, 2s. 0d.; Second, 1s. 10d. King's Lynn: First, 1s. 11d.; Second, 1s. 10d. Lincoln: First, 1s. 10d. Llandilo: First, 1s. 9d.; Second, 1s. 8d. Montgomery: First, 1s. 9d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 2s. 0d. Oswestry: First, 2s. 2d.; Second, 2s. 1d. Penzance: First, 1s. 9d.; Second, 1s. 8d. Salisbury: First, 2s. 2d.; Second, 2s. 1d. Shrewsbury: First, 2s. 0d.; Second, 1s. 10d. Skipton: First, 1s. 9d. Truro: First, 1s. 8d. York: First, 2s. 0d.; Second, 1s. 11d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 9d. Derby: First, *4s. 9d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 4d. Ipswich: First, 1s. 10d. Lincoln: First, *5s. 6d.; Second, *4s. 0d. Llandilo: First, 1s. 7d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 5d. York: First, *5s. 0d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 3d.; Second, 1s. 0d. Derby: First, *5s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 4d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Ipswich: First, 1s. 6d. Llandilo: First, 1s. 7d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 6d. Shrewsbury: First, 1s. 6d. Truro: First, 1s. 4d. York: First, *5s. 6d.; Second, *5s. 0d.

* Per Head.

POST-MORTEMS.

Readers are advised that in future reports of post-mortem examinations will be made by post only, and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 3rd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

NATIONAL POULTRY COUNCIL.

NOTICE OF MEETINGS.

The next meeting of the National Poultry Council will be held at the South Eastern Agricultural College, Wye, Kent, on Wednesday, October 1st, of which agenda will be forwarded in due course. Committee meetings will be held on the afternoon and evening of Tuesday, September 30th, and notices will be sent of these meetings to those who are Members of the various Committees.

The College authorities will provide accommodation for Tuesday evening, September 30th, at an inclusive charge per diem of 10s. 6d., and it is suggested that Members of the Council should arrange to arrive there in time on September 30th, so that they may be able to inspect the Southern Breeding Station. It is requested that applications for reservations shall be made direct to Principal Wilson, South Eastern Agricultural College, Wye, Kent.

EDWARD BROWN, General Secretary.

29th August, 1924.

Light Sussex Pullets Pedigree bred from birds closely related to Silver Medal Winners in Official Laying Tests.

APRIL, 17/6; MAY, 12/6 each.

COCKERELS — LIGHT SUSSEX, BUFF ROCKS,
MARCH, 27/-; APRIL, 20/-, 15/- each.

WHITE RUNNER EGG DUCKS, 20/- each.

Pedigree Drakes, 15/- to 25/- :: Khaki-Campbell Drakes, 25/-

BREEDING PENS from 80/-

Everything sent Carriage Paid.
My Book, "WHAT'S WANTED," 2s. 6d., explains How to Get Winter Eggs.

Miss HARRISON BELL, WELWYN, HERTS.

The Permanent Way of Roofing

is to use "Stoniflex" Roofing Felt.
"Stoniflex" gives maximum service at minimum cost. Tough and flexible, it is quickly laid and easy to handle. Requires no annual tarring. The price is marked on every roll. All Ironmongers sell it.

D. ANDERSON & SON, LTD., PARK ROAD WORKS, STRETFORD, MANCHESTER. Roach Road Works, Old Ford, LONDON, E.3, and at Lagan Felt Works, BELFAST.

Write for free samples

Stoniflex FELT
The Roofing with the "RED HAND" Guarantee behind it.

per **13/6** Cwt.

DRY MASH
(Newman's Formula).

Bags Free. Cash with Order. Carr. Forward. 6d. per cwt. less 5 cwt. lots, any assortment

Also Chick Corn No. 1, and Chick Mash (T. Newman's Formula), Fish, Meat, Alfalfa and Germ Meal, Gluten, S.G. Oats, Dried Yeast, Dried Separated Milk.
Write for Quotations.

J. M. DAFFARN & SONS, Ltd
M.S.P.B.A.,
Poultry Food Specialists,
The Croft, ERDINGTON.

Try THE SENLAC DUCKLING BATH.

Indispensable for Duckling Rearing and Adult Stock.

YOUNG DRAKES
from Tested Khaki-Campbell and F. and W. Runner Layers.
At Very Reasonable Prices.

H. B. CARRINGTON,
Blacklands, Crowhurst, Sussex.

Yorkshire Federation of Poultry Societies
FIRST ANNUAL INTERNATIONAL EGG-LAYING TEST, 1924-25.

To be conducted on the Federation's Farm at **OTLEY, YORKSHIRE.**

Ten Sections, with eight silver Challenge Cups and Gold, Silver, and Bronze Medals in each section.
The Management claim the site and housing the finest in the Country.

Originators of the duplicate record charts, as used in the cabins; and will be sent to competitors at the end of each month. For Rules and Entry Forms apply:—
Albert J. Moore, F.B.S.A., Hon. Secretary,
Wellington Street, York

Visol

NOW IS THE TIME to give your birds VISOL, the new and positive cure and preventative for the many complaints they are subject to during the autumn and winter months. Assists hens and pullets to withstand the strain of moult and prevents precocious pullets from laying too early.

VISOL gets to the ROOT of the troubles —the blood—and invests the birds, quickly and surely, with power to resist disease. The specialised discovery of Albert H. Brain, VISOL is the outcome of years of intensive research.

WRITE TO-DAY, giving details of your troubles, and full, free advice will gladly be given.

Quart Stone Jars, 10/6; ½ Gallon, 17/6; Gallon, 30/-.

ALBERT H. BRAIN
(Member International Association of Poultry Instructors and Investigators),
63, Old Meeting Street, West Bromwich.

Established 1912.

A. St. John Tregurtha, M.S.P.B.
MARCHWOOD, HANTS.
Telephone: Totton 22.

SALE OF
SURPLUS BREEDING STOC

Hens, 1922-3, with 1st year records o 190 to 220.

ANCONAS, 1922 Hens, 4s. 6d. each
ANCONAS, 1923 Hens, laying, 5s. 6d. eac
WHITE LEGHORNS, Hen, 4s .6d. each
RHODE ISLAND REDS, Hens, 6s. each
WHITE WYANDOTTES, Hens, 6s. each

Carriage Paid. Guaranteed Healthy
Cash with order.
Telegrams: Tregurtha, Marchwood.

STOCK COCKERELS
February and March hatched, in
WHITE LEGHORNS.
WHITE WYANDOTTES.
RHODE ISLAND REDS.
KHAKI-CAMPBELL DRAKES.

All at **12s. 6d.** each, Carriage paid.
Full Pedigree on Application.
All Stock Sent on Approval.

R. Hugh Parker, S.P.B.A. N.U.P.S. } Mem.
The Brooklands Poultry Farm,
MILDENHALL, SUFFOLK.

EG

Wednesday, September 10th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
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Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months	Post	Free	12/8
Six Months	,,	,,	6/4
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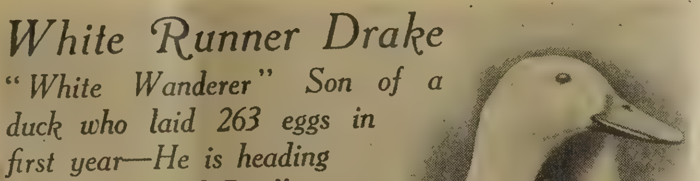


White Runner Drake
"White Wanderer" Son of a duck who laid 263 eggs in first year—He is heading "Extra Special Pen"

My White Runners

are well known as heavy layers. If you want a Breeding Pen, come and choose one from my "Many Egg" strain flock. They are a beautiful sight, ideally housed and have acres of range.

I have some 1923 ducks at **18**/- each, 1924 ducks at **20**/- and **25**/- each, and 1924 drakes at **10**/-, **15**/- and **20**/- each.

Write for my Price Lists of—

White Leghorns,
Light Sussex,
Buff Rocks,
Khaki Campbell Ducks.

MISS HARRISON BELL,
WELWYN —— HERTS

The WHITE HOUSE POULTRY FARM
ST. NEOTS, —— HUNTS.

House and Appliance Department.

WE have for disposal 17, 8′ × 8′ Houses, new and second-hand, (some have only had a few weeks' use) for rearing chickens, fitted with our Patent Ventilating Screen, ¾″ bds. and all planed studding on floors with joists and runners, and Ruberoid roofing.

The Seal of Quality and Distinction.

Price New £12 12s. each
Second-hand £10 10s. each
Carriage paid nearest Station.

Order now for early delivery
The House that appeals to all Poultry Keepers.

Highlands Poultry Farm, Ltd.
UTILITY WHITE LEGHORNS.

PULLETS 1924 Hatched

Feby. to April	**15/- ea.**
May	**12/6 ea.**
Selected Breeding Hens (1923)	**6/=** ea.
Selected Cockerels (Jany. 1924)	**£1 1s.** ea.
Selected Cocks (1923)	**10/-** ea

All birds on this farm are produced from stock which has been blood-tested free from B. W. D.

HIGHLANDS FARM, Henley-on-Thames

EXTENSIBLE UNIT BUILDINGS

Will increase your flock average

as they have done for other successful Poultry Farmers. Letters from clients testify to increases in egg yield from 25 per cent. to over 100 per cent., undoubtedly due to the change to Extensible Unit Housing.

The lean-to house illustrated here represents far more thought and care in the design than any previous model of this type. Note the thorough lighting and ventilation without that objectionable draught so frequently met with in the lean-to type. They are supplied in 8ft., 10ft. and 12ft. depth in any length required; all except the 8ft. depth carrying floor lights in rear under the dropping boards. All built of standard sized timber; but heavier material, extra doors and partitions supplied to clients' requirements. Designs and ventilating system protected by registration and patents.

EXTENSIBLE UNITS

Extensible Unit Buildings prove the Importance of Housing.

W. H. COLT, M.N.U.P.S., S.P.B.A., BETHERSDEN, nr. ASHFORD, KENT

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.
Wednesday, September 10th, 1924.

Editorial.

VITAMIN "A" DEFICIENCY.

One of the most interesting Bulletin we have yet received from America is entitled "Studies on a Nutritional Disease of Poultry caused by Vitamin 'A' Deficiency." It is written by Professor J. R. Beach, of the Agricultural Experiment Station, Berkeley, California.

The writer says the symptoms resembled those of roup more than of any other disease in fowls known to him, but differed enough so that a differential diagnosis was readily made.

Owners of flocks in which the disease occurred reported losses of about 10 per cent. from fowls within from two to six weeks. Examination of several such flocks showed that from 10 to 20 per cent. of the fowls had typical lesions. All flocks observed consisted of fowls in their first laying year or of pullets which had not yet reached the laying age.

The disease occurs more frequently in fowls between the ages of four and twelve months than in those younger or older. It is believed that the infrequency with which younger birds are affected is that they usually receive an adequate diet rather than that they are less susceptible. Older birds are apparently quite resistant to the disease, although it has been observed in fowls more than two years old.

Outbreaks have been confined largely to periods of the year when dry or cold conditions, or both, prevail and make it difficult to raise green food.

The characteristic symptoms of this disease are confined to the head, and involve the nasal passages, the mouth, pharynx, and esophagus and the eyes.

A discharge from the nostrils of a watery or viscid fluid is nearly always present. Later this may collect in the infraorbital sinuses, become transformed into a caseous mass and cause swelling of the face. This involvement of nasal passages is indistinguishable from the commonly occurring "colds and roup," and in the absence of other symptoms is of no diagnostic value.

Marked emaciation and weakness occur in the later stages of the disease, although many fowls die suddenly while still in good flesh. In many cases there is a deposit of chalk-like substance on the feathers below the vent.

The bacteriological examination of diseased birds showed the caseous material in the mouth and eyes to be swarming with several types of rod-shaped bacteria which grew rapidly on ordinary culture media. Attempts to produce the disease in healthy birds by inoculation with cultures or with the caseous material itself failed in all cases. Confining healthy with diseased birds in small coops also gave negative results.

When all attempts to transmit the disease or establish any etiological factors of any infectious nature failed, incorrect feeding methods were suspected to be the cause. Since in all flocks affected the supply of green food was very scanty or entirely lacking, an insufficient amount of greens was the first dietary factor suspected. The nature of the kidney lesions suggested too much protein, and the appearance of the typical lesions in fowls confined in cages and fed wholly on whole grain suggested too little protein as possible cause. In all field outbreaks, however, the amount of protein in the rations was not deficient. The report of one owner that the disease had appeared after the introduction of coconut meal into the ration brought this food-stuff under suspicion. It was, therefore, suggested to owners of affected flocks that the disease might be controlled by increasing the amount of green food, decreasing the percentage of protein and entirely eliminating coconut meal from the ration.

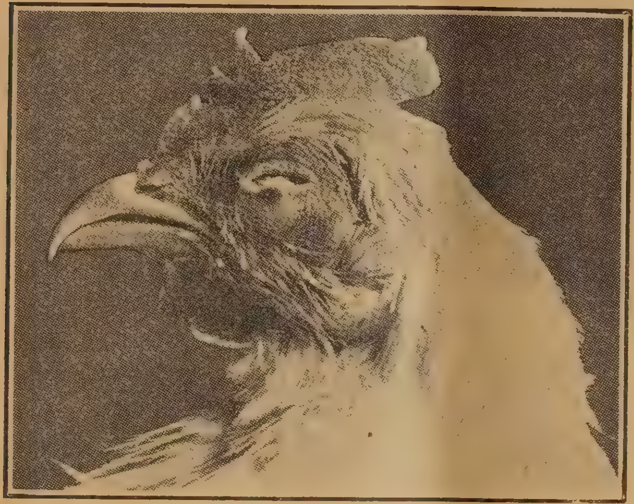
Observations are then reported on four flocks. In the first case very little green food had been given for five weeks. Within thirty days after the ration was changed and the grain increased, the disease had entirely disappeared with a loss of but twenty additional birds.

Flock No. 2 contained 784 pullets about four months old. No greens had been fed for a month, about 100 had died during this period. Greens were fed liberally, and the flock entirely recovered in thirty days with a mortality of but nineteen additional birds.

Flock No. 3 consisted of 1,336 hens, 239, or 17.8 per cent., of which had characteristic lesions. About 150 had died within six weeks. Greens were fed to the flock in the yards, and within two weeks the number of diseased was reduced to 40.

Flock No. 4 consisted approximately of 700 pullets, about four months old. Detailed examination was not made of this flock, but at least 10 per cent. were visibly sick. The owner stated that he was feeding all the greens that it was possible for him to obtain. He was then advised to feed the grain in small amounts widely scattered three times a day instead of feeding the total daily supply in the troughs at one time. Within a week the flock showed a marked improvement, and no further losses occurred.

Space will not permit us to give the fullest de-


The characteristic ophthalmia of Vitamin A deficiency.

tails of the experiments which the author believes demonstrate that this disease is due to a deficiency of Vitamin "A." We, therefore, only give details of experiment No. 2, and are also publishing two or three illustrations which show the symptoms exhibited by birds suffering from this disease. What one wonders is, how often this disease occurs in our own country, and is diagnosed as roup and treated as such.

EXPERIMENT No. II.

The general plan of this experiment was to feed fowls a suitable mash and grain mixture as a basal ration, and to supplement this with known good sources of Vitamins A, B and C, or a salts mixture, butter milk, or green food.

The basal ration used during the first two and one-half months was a mash consisting of :—

Wheat Bran	25 parts.
Wheat Shorts	25 ,,
Yellow Corn Meal ...	25 ,,
Soya Bean Meal ...	10 ,,
Meat Scrap	15 ,,

and a commercial "chick grain" mixture composed of :—

Cracked Milo	6 parts.
Cracked White Egyptian Corn	4 ,,
Cracked Wheat	12 ,,
Cracked Yellow Corn ...	4 ,,
Cracked Rice	1 ,,
Steel Cut Oats	2 ,,
Ground Bone	1 ,,

It was, of course, recognised that this ration supplied some Vitamin A in the yellow corn, and Vitamin B in all the grains. However, it does not differ essentially from rations fed to flocks in which the disease had occurred. This was considered to indicate that, although these vitamins were present, the amounts were deficient.

On August 1st it was thought desirable to eliminate yellow corn from the ration, so as to make it more nearly Vitamin A free, and therefore ground barley was substituted for the yellow corn meal in the mash, and the grain ration changed to equal parts of wheat, barley and white Egyptian corn. The mash was fed dry in hoppers and the grain twice daily in the litter.

Vitamin A was supplied by cod liver oil, 1 cc. of which was given daily with a pipette to each bird.

Five per cent. of dried yeast was added to the mash to supply Vitamin B.

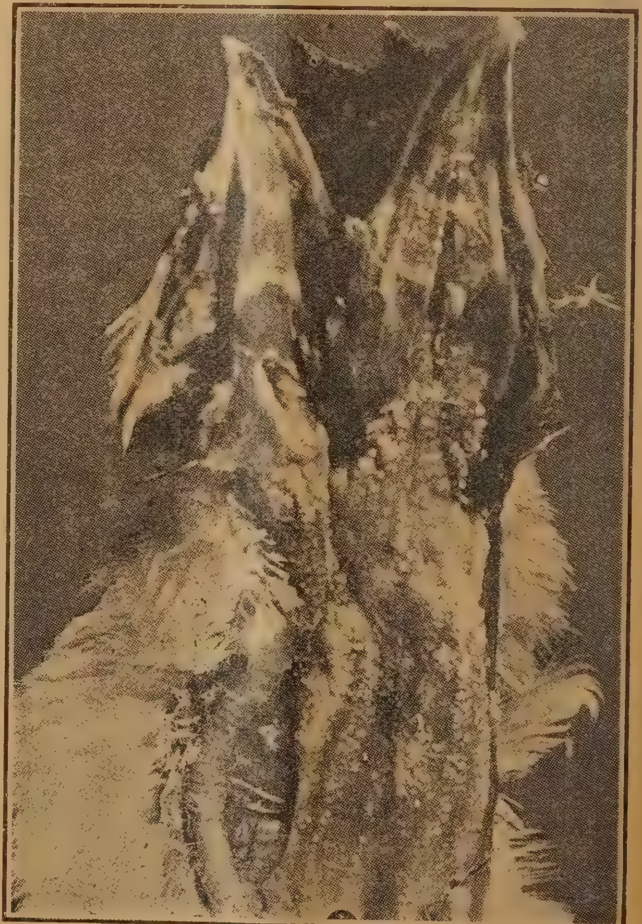
One cc. of orange juice was given to each bird daily to supply Vitamin C.

The salts mixture contained :—

Calcium Carbonate ...	30 parts.
Calcium Phosphate ...	20 ,,
Sodium Chloride ...	20 ,,
Sodium Sulphate ...	15 ,,
Iron Sulphate	15 ,,

Two per cent. of this was added to the mash.

The buttermilk was termed "family grade" by the creamery supplying it. This was constantly before the birds in place of water. The green food was blue grass and clover lawn clip-


An advanced case of Vitamin A deficiency, showing the pharynx and esophagus studded with putsules.

pings. Granite grit was available at all times. The birds were confined in houses with tight board floors and shavings litter.

The birds were three-month-old White Leghorns. They were divided into eleven pens of fifteen birds each, and treated as follows :—

Pen No. 1.—Basal ration only (control).
Pen No. 2.—Basal ration plus salts mixture.
Pen No. 3.—Basal ration plus cod liver oil.
Pen No. 4.—Basal ration plus yeast.
Pen No. 5.—Basal ration plus orange juice.
Pen No. 6.—Basal ration plus cod liver oil and yeast.
Pen No. 7.—Basal ration plus cod liver oil and orange juice.
Pen No. 8.—Basal ration plus yeast and orange juice.
Pen No. 9.—Basal ration plus cod liver oil, yeast and orange juice.
Pen No. 10.—Basal ration plus buttermilk.
Pen No. 11.—Basal ration plus lawn clippings.

With one exception no characteristic lesions appeared until August 1st, three and one-half months after the experiment was started, when ten cases were found scattered through Pens 1, 2, 4, 5 and 8. The confinement of these cases to those pens in which neither cod liver oil nor greens were fed seemed to point towards Vitamin A deficiency. This, together with the fact that about twice as much time was required for the appearance of lesions as in the preceding experiment, made it seem possible that the yellow corn in the ration was supplying enough Vitamin A to partly protect the fowls. For this reason the changes in the basal ration already noted were made on August 1st.

(To be continued.)

POULTRY CLUB NOTICE.

Members are reminded that Resolutions for the Annual General Meeting must reach the undersigned by September 16th.

County Branch Committees are notified that the names of new members in the Competition for the President's Cup must be in my hands by September 30th. This cup is to be won outright by the branch sending the greatest number of new members in the current club year, October 1st, 1923, to September 30th, 1924.

As so many nomination papers were wrongly sent to me, may I ask the members to send voting papers direct to the Election Secretary, Mr. Arthur C. Powell, Rockchase, Hornchurch, Essex. Members who have paid their current year's subscription can vote for three persons only—a president, one vice-president for their own section if more than one has been nominated, a secretary if an election is necessary for that office.

Three other points of interest are: (1) The venne of the Annual Dinner has been changed. It will be held on October 21st, at 6.30, at Gatti's, Adelaide Rooms, Strand (nearly opposite Charing Cross Station); (2) there will be the usual room for members at the Dairy Show; (3) the General Meeting will be in the B.D.F.A. Club Room at the Show on Wednesday, October 22nd, 1924.

WILLIAM RICE,
Hon. Secretary and Treasurer.

29th August, 1924.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

CANNIBALISM.

Mr. Fred Fielding, writing from San Diego, says:—

"I notice you have had quite a few discussions in 'Eggs' on Cannibalism, particularly toe-picking. There are all kinds of nostrums to prevent or cure it, but really prevention is very simple. If you bed the brooders with straw litter (chaff) it won't occur, unless the litter is too sparse, and there are too many bare places. I have proved this beyond question. The real object should be to make the surroundings similar in colour to the feet of the chicks. If the chickens' feet are conspicuous or too distinctive, they will, under favourable conditions, start, but if there is no distinction (everything looking like straw) it won't happen.

Sometimes Cannibalism is terrible here in pullets just starting to lay. One ranch lost over 100 birds in three or four days; they were cleared completely out. He stopped it eventually by splahsing the interior of the house with a non-poisonous turkey red stain. Everything they saw was read, and at first the pullets attacked this red matter as if they were crazy, but after repeated attempts, finding they could get 'no kick out of it' (as they say here) they became familiar with the colour, probably assuming the colour (red) had nothing in it, as far as they were concerned, and lost interest in it.

To revert to toe-picking. The first year it was almost an epidemic with us. We just had the brooder floors covered with sand; since then we have used straw chaff all the time, and have not had a single cases in two seasons. We have advocated this to those who complain of this habit, and in all cases it has ceased, and they have had no further trouble."

Mr. Fielding's letter seems to confirm opinions already expressed in these columns, in regard to both cannibalism and toe-picking, as we have often pointed out, that the latter trouble is far more prevalent in bright sunny springs, than in dull, cold ones, and have advised the blue-washing of the brooder house windows, and all, so that the sunlight should not play on the yellow legs, for it is the habit of the chick of picking at anything bright which starts the trouble, which is of very rare occurrence in any but the yellow-legged breds. Before this was discovered it used to be attributed to dietetic deficiencies, and we were advised to add salt to the ration to give more meat, or fresh green food. What a pity it is we don't look for the simpler solutions rather than the more complex in the first place.

A GOOD LAYER AND THE GOOD MOULTER.

It is generally agreed that a good layer is a late moulter, but I have never yet seen any satisfactory explanation as to why this should be. I have my own solution of the problem, but suggest that some of our readers would like to try their hands at an explanation first, and thus help their fellow-members.

The question appears to me to be a very interesting one. We really understand very little about the moult, and in reading the old book, referred to in last week's Editorial, kindly sent me by Mr. Prentiss, I find that in those days it was classed by many writers on poultry under the heading of Disease. The author says it is only a natural process with most animals in changing their summer coat for a winter one. I doubt whether we can say that the hen is changing her summer coat for a winter one, in spite of the fact that she is getting new plumage. The writer then goes on to say that it is " a great drain on their constitution, and fowls, during moulting time, should be kept warm, and liberally dieted with warm and stimulating food, such as boiled oatmeal, seasoned with salt and pepper, chopped onions, mashed potatoes, and occasionally bread crumbs soaked in strong ale or weak gin. Oxide of iron, lime water, and sulphate of iron can also be given with advantage."

What appears to me to be the difficulty is in not getting the birds to moult, but in getting them to grow the new feather rapidly, but at any rate some of you might like to have a go at my question.

THE YORKSHIRE FEDERATION.

Rules and particulars of the First Annual International Egg Laying Test, promoted by the Yorkshire Federation, are to hand. I note that H.R.H. Princess Mary and Viscount Lascelles are patrons. The Test is to be conducted on the Federation's Farm, at Otley, is open to the world, will begin on October 18th, and run for 48 weeks, concluding on September 18th, 1925. An interesting innovation is the Large Commercial Flock Test in two sections for Light and Heavy Breeds. There is to be a wet and dry mash test. I am afraid of this, however, as so many of the birds will probably have been reared on wet mash, and our own experience may be repeated; that is, they will not take readily to the dry mash, and possibly a lot of them may moult, and the winter egg be lost. The management claim that the plant is the most efficient and up-to-date in the British Isles. There are very valuable prizes to be awarded. The Secretary is Mr. A. J. Moore, Wellington Street, York, from whom all particulars can be obtained.

UTILITY JUDGING.

Mr. Fred Wait gave a very interesting address on the occasion of the Joint Meeting, organised by the Nottingham and Notts Branch of the Utility Poultry Society, and the Bulwell and District Fanciers' Society who visited his farm recently. In his address Mr. Wait said:—

> " Every man or woman nowadays judges according to his own standard, for they had no fixed standard to guide them. The score-card system had undoubtedly its advantages, but it also had disadvantages, and he was certainly opposed to a score-card arranged by special societies or individuals, for it was not a private matter, but a national matter. If a standard for exhibition-utility birds is to be proved it can be done only by a responsible committee, and, finally, brought before the National Poultry Council before it is finally sanctioned. That is absolutely essential."
>
> " To judge utility birds one is on a different basis from the classes of exhibition birds, for in the latter case the judge saw all the birds before him, and judged them as they appeared, but in a utility class if the award was to have any value at all, it was necessary to take out every bird and handle it, and then take notes of the strong and weak points, for it was impossible for any judge of a large class to carry in his mind the characteristics of every bird he handles and, therefore, the process must be slower."

I think most of us will agree with what Mr. Wait has to say, but whether it is possible to fix a standard for utility birds or not, I have very serious doubts, as I cannot see on what that standard shall be based.

At present it seems to me that it is quite possible for a bird to win on points, and yet have defects which would absolutely condemn her as a layer.

I agree with Mr. Wait that handling has its advantages, without a doubt, but too much reliance must not be placed on anatomical characteristics. For example, he speaks of one strain of R.I. Reds which had thick pelvic bones, and yet they had proved their worth in every laying competition. Now some judges are very keen on the thickness of the pelvic bones, and will give double the points for a very thin pelvic bone than they will for a thick one.

A BRITISH EGG-LAYING RECORD.

White Wyandotte Hen, "Cotswold Champion," which has just completed a record for laying in this country. She has laid 322 eggs in pullet year, from August 2nd, 1923, to August 1st, 1924. The 322nd egg weighed over two ounces. This bird is still laying.

Bred and owned by Mr. Arthur Levet. Reference to this bird and the fact that it was fed on dry mash, was made in a recent issue of "Eggs."

THE ANNUAL GENERAL MEETING.

Place and date of the Annual General Meeting have not yet been decided. It will, of course, take place in the Dairy Show week, but the actual day has not been fixed yet. Will members please note that RESOLUTIONS FOR THE MEETING MUST REACH ME NOT LATER THAN SATURDAY, 27th SEPTEMBER.

Please note that NOMINATIONS FOR MEMBERSHIP OF THE COUNCIL MUST NOT BE RECEIVED LATER THAN WEDNESDAY, 17th SEPTEMBER.

We have received Postal Orders for subscriptions to the S.P.B.A. from the following places:—Auchtermuchty, Newcastle-on-Tyne, Lyndhurst, Canterbury, Oundle. Neither the names nor addresses of the subscribers have been sent with these, and we should be glad if those who have sent them would kindly communicate with us.

LIVERPOOL AND DISTRICT BRANCH.

The Annual Conference of the above Branch will be held in the "Common Hall," 3, Hackin's Hey, Liverpool, on Saturday, 27th September, 1924, at 6 p.m.

LECTURES.

6 p.m. (Members).—Mr. Newman on the work of the S.P.B.A., and a paper on "Some Everyday Questions."

7 p.m. (Public).—Mr. Meekings' paper on "Planning a Poultry Farm."

Mr. Newman will answer questions on Utility Poultry, etc.

THE SUSSEX POULTRY CLUB.

A Committee Meeting of the above Club was held at 3, Vincent Square, on Wednesday, 27th August, at 12 noon.

Present:—Mr. J. Russel (President) in the chair, Messrs. A. Amey, Fleetwood Ashburnham, F. N. Goode, F. W. Rogers, T. R. Robinson, Clem Watson, and the Secretary.

The Minutes of the last meeting were read, confirmed, and signed.

Mr. Grant moved, and Mr. Russel seconded, that the winners of Club Cups be accorded the privilege of having their actual birds painted and reproduced in colour, and of finding plates for reproduction in the Year Book. This was agreed to.

A discussion took place as to the colour in the Brown variety. Mr. Ashburnham moved, and Mr. Amey seconded, that a resolution be brought before the General Meeting that the word "dark" in the colour standard of the Brown Cock be deleted, or, as an alternative, that a committee be appointed to consider the question of the colour in the Browns.

Mr. Goode proposed, and Mr. Grant seconded, that the Club give one medal for the Sussex laying the greatest number of first-grade eggs, and conforming to the Club's standard, in the "Feathered World" Laying Trials, from October 1st, 1924, to 2nd September, 1925.

The following new members were elected:—A. F. Nalder, J. O. Kirkley, Rev. E. I. Colnett, Messrs. Maunder and Colson, F. M. Smith, H. B. Turner, W. H. T. Cook, W. Goodbridge.

The next meeting was arranged to take place at the Dairy Show, of which due notice will be given.

HAROLD MAYALL, Hon. Sec.

Modern Poultry Feeding.

By **TOM NEWMAN.**

BROWN *v.* WHITE BREAD.

Some ten or twelve years ago we had the Standard Bread Campaign by the "Daily Mail," and we were told of all the remarkable improvements in health which would result if we ate whole-meal bread instead of the white bread, which we all found so much more palatable.

I remember one pathetic story which was related of a happy father whose children had all been cured of rickets by eating standard bread in place of the white. At that time the vitamins were almost unknown. This happy result, which the grateful parent related with tears in his eyes—(It should be stated that he was a baker)—was attributed to the mineral salts, and not to either vitamin A. or B. Now a new campaign has commenced, more emphasis is placed on the vitamins and less on the value of the mineral salts. Further, we are told that the whole-meal bread will ward off sundry other evils, will prevent the dreaded cancer, also tuberculosis. Really we are wafted from one strange thing to another, and are in the happy position of being able to take our choice of the remedies and preventives for every ill under the sun. We might choose garlic, and believe we are warding off the two greatest scourges of the human race, or even take Carbolic Acid as a cure for one of them. Our athletes make their records on somebody's salts or somebody's stout, and the cricketers are only able to stand the nervous strain of making 50 runs by the aid of nerve tonics, while footballers require some form of iron to help them to kick goals.

Now the white bread fanatics are fighting the brown bread fanatics, and the point they are raising is the digestibility of these. We are told that of the proteins of white bread 85.3 per cent. is digestible, of the fats 56.4 per cent., and of the carbohydrates 97.5 per cent. Against this the brown bread puts up but a poor show: 80.4 per cent. of the proteins, 55.8 per cent. of the fats, and 94.1 per cent. of the carbohydrates; but, as I have so frequently said, digestibility is not the final test of the value of a food, and it is the quality of what is digested, rather than the quantity, which is the important factor It is the results that count, and not the analysis.

We have Bunge's experiment with rats to prove this. A litter of eight rats was divided into two groups of four each, one group was fed upon bread made from fine white flour, the other upon bread made from flour including bran.

At the end of the fifth, sixth, eighth and ninth weeks respectively, one rat from each group was killed, and the gain in weight, the total amount of hemoglobin, and the percentage of hemoglobin in the entire body were determined. The average results were as follows:—

Kind of Ration.	Gain in weight of Body. Grams.	Total Hemoglobin in Body. Grams.	Proportion of Hemoglobin in Body.
White Bread ...	4.81	0.2395	0.613 per cent.
Brown Bread ...	20.76	0.3492	0.714 per cent.

So that the bran-fed rats not only made much greater general growth, but developed both a greater amount and higher percentage of hemoglobin, which indicates how well they utilised the iron and other ash constituents in the outer layers of the wheat berry.

As I have pointed out before, the digestible constituents in 100lbs. of maize are 74.34 per cent.; in 100lbs. S.G.O., 59.50 per cent. Are we to argue from this that maize is the much more valuable food?

DRY MASH AND WET MASH FEEDING.

Turning once more to dry and wet mash feeding, I have received the following letter from a Hampshire reader:—

> "You will no doubt be interested to hear that for the first time I reared my chicks on your dry mash formula I did not lose a single chick from illness or leg weakness, although reared on boards. Those that I hatched in January started to lay on June 14th. I have now put my young pullets on the full laying mash. My fowls have also laid well. The 1923 pullets were trapped from November to January, and nearly all passed the test. My first experience with your dry mash formula. I am absolutely convinced now of the dry mash principle, although for years I have been an advocate of the wet mash."

I can only repeat what I have so often said before. Given two equally good feeders, working under the same conditions, the results of feeding wet or dry mash would be practically the same at the end of the twelve months.

THE "HYPOTHETICAL VITAMINS."

Dr. John Boyd Orr, Director of the Rowett Research Institute, Aberdeen, read a paper before the British Medical Association on "The Importance of the Mineral Elements in the Maintenance of Health." He states that he has pointed out elsewhere that in some of the work of vitamins, much of the beneficial effect ascribed to the "Hypothetical" vitamins is in reality due to the minerals present in the substances given as a source of vitamins.

These correct the mineral defects in the basal diet. In experimental work it has been found by several workers that as the mineral matter of the ration becomes more closely adjusted to the requirements of the body, the need for vitamins decreases. Now, in his experiments with pigs, calves and fowls he has found that if the diet be properly balanced with regard to minerals, there is no likelihood of any deficiency of vitamins occurring.

Dr. Orr pointed out that during the last few years there had been a tendency to regard the evil effects of too exclusive a use of certain refined foodstuffs, "as due chiefly or entirely to a deficiency of vitamins." Recent work, however, had shown that many of the evil effects might be attributed to a lack of correspondence between the mineral content of the diet and the mineral requirement of the body. Of the 15 chemical elements making up the body ten were mineral elements, and each of these was known to perform functions which could not be adequately performed by any of the others. All these minerals were continually being lost from the body in the excretions, and all were required as constructive material of growth.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

M. B. (Sevenoaks). The Sussex ground oats at 14s. 6d. are good value for the money, although they give one the impression that they have been stored for some time. The bran, marked No. 1 at 9s., is quite a good sample. I prefer it to the other, marked Best Bran, at the same price.

E. N. D. (Hereford). My dear Sir, you place me in a rather difficult position. Your birds have colds, and you want a remedy. Now, if I advise serum treatment, you will be told that your are pouring filth into the birds' blood; if Garlic, it smells and will make the eggs taste; if sulphate of copper, we shall be corroding the birds' insides; if salts, we shall be lowering their tone; if permanganate of potash, they will say it is useless. So you see where we are. I can only relate my own experience—that is, for colds I have known nothing to equal sulphate of copper. Dissolve four ounces of sulphate of copper in a quart of water and add one ounce of the solution to every gallon of drinking water, and at the same time take particular care that there is nothing wrong with the ventilation of the house—no draughts, that the birds are not crowding on the perch, and that they are not perching too near the roof.

C. (Surrey). The middlings are rather a poor sample; there is a very high percentage of ground-over bran with them. I should like something with more of the flour. The sample of S.G.O. at 16s. is rather the better of the two, but that at

15s. 6d. is quite good enough for the purpose, and I should hesitate to pay the extra 6d. Neither sample is first-class, although not actually bad.

L. B. (Mount). In reply to yours with reference to the disposal of hens and chicks by canning, referred to in the Canadian paper, and your query as to whether this could be done on a small scale, by the killing of fowls and mincing them into a paste to making potted meat. I do not know of anything in this line in this country, but I believe it will be undertaken by the new Co-operative Poultry Products Co., Ltd. (2) Although Capt. Rice spoke of the danger of feeding grain in the litter, and said it was quite unsound, he qualified the statement by stating that possibly there would be quite as great a risk if we had any other means of providing the fowls with exercise. One must take the risk of scattering grain in the litter, and the only precautions that can be taken are to see that their litter is always clean and dry. I suggest that if a little lime was shaken in occasionally it would be extremely beneficial ; and also do not make the grievous mistake, which so many people make, of feeding too much grain. There is often much waste of grain in the litter, and this becomes mouldy and causes disease. Yes, pine wood chippings would make quite good scratching litter.

A. D. (Essex). There does not appear anything in the feeding which would actually cause the birds to be backward. Of course, one must take into account the quality of the ingredients. However, I think you would be wise to increase the Sussex ground oats by another measure, and be quite certain that your maize germ meal is a good sample. For winter laying I would much prefer the following dry mash:—1 lb. bran, 1 alfalfa meal, 4 middlings, 1 maize meal, 1 S.G.O., and 1 meat and bone meal or fish meal. This would answer your second question as to what percentage of alfalfa meal you should use. If the birds to which you refer are very backward I should cover some good plump oats with cold water ; allow them to simmer on the fire until all the water is absorbed, then dry off with equal parts middlings and bran, and give the birds an extra feed of this. With regard to artificial light : this will certainly produce more eggs in the winter, but it is not advisable to "light" birds intended for breeders. You will see the reference made to this in last week's issue.

Cumbrian (Cleator Moor). I don't like giving recipes for spice mixtures in these columns, they are altogether unnecessary and are more or less injurious. If you want to get all the eggs you can out of the hens, it would be much better to feed for them than to give an irritant. A spice can only make the ovary abnormally active for a very short time, it cannot make eggs. However, here is a recipe for you : Aniseed, liquorice powder, and cayenne, 2 ozs. each, gentian and bone meal 4 ozs. each, fenugreek 8 ozs., carbonate of iron 2 ozs., middlings 1 lb.; mix thoroughly, and add one heaped teaspoonful to the mash for six hens.

J. T. (Burnley). I am sorry we cannot reply direct if you are not a member of the S.P.B.A., the charge for a reply by post is 2s. 6d.; we cannot depart from this rule. A good formula for your purpose will be : Broad bran 11 lbs., fine white middlings 24 lbs., maize meal, ground oats, fish or meat meal 7 lbs. each. If you are short of green food you might replace half the bran with the same quantity of alfalfa meal, and if you want to give variety replace the Sussex ground oats with biscuit meal. I am very glad to have your appreciation of "Eggs."

G. G. (Rochdale). I cannot express a definite opinion as to whether prolapsus is contagious as is abortion in cattle or not. Sometimes when one gets a letter as I have to-day, in which the writer says it is very prevalent in a certain district, it makes one inclined to think it may be so, but that is possibly a coincidence. It is certainly more prevalent with White Leghorns than with any other variety, particularly in the spring months when they are in full production. (2) Diphtheritic roup is not inherited, but if the cockerel had such a bad turn as you describe I would not mate him, as his constitution must be weakened, and the weak constitution of the parent will be inherited by the offspring.

POST-MORTEMS.

R. H. The post-mortem examination of the W. Wyandotte hen showed the cause to be peritonitis and blood poisoning, due to a crushed and decomposed yolk that had failed to enter the egg canal. There is no treatment for these cases, which are the result of over productiveness. Chlorinating the drinking water by means of chlorine producing mixtures is a safe and effectual method of destroying micro-organisms, and is to be recommended.

D. G. B. A. R. The post-mortem examination of the Black Minorca hen showed the cause to be peritonitis, due to the failure of a yolk to enter the egg canal, and then, becoming crushed and decomposed, set up the trouble. Any form of violence, such as falling off the perch, or getting jammed in a doorway, a blow, etc., would cause the rupture of the yolk.

A. D. S. The colour of the bowel should have told you that this bird was affected with cholera. Its incidence is uncertain. You may lose a few and the organism die out, or the microbe may gain in virulence and sweep away the flock. It is imported that you should segregate suspects and thoroughly disinfect. I hope you have BURNED the bodies of the "several" that have died, as it is the only safe method of disposal. I would advise giving seven grains of hyposulphite of sodium night and morning, dissolved in water and mixed with food, as preventive with some sort of a reputation, and in the absence of any better-known prophylactic. Your urgent marking of parcel resulted in a demand for sixpence on delivery, late in the evening.

V. E. H. There was a rift in the oviduct, and the contents escaped into the abdomen among the bowels, causing peritonitis, and coma. This is one of the accidents to which the good layers are liable, especially when too fat inside, as this bird was. Her associates may be too fat, and it would be an insurance policy to fast them for a day and night, and give every morning for a week a dose of glauber salts, at the rate of a teaspoonful to each half-dozen birds.

A. D.-R. I regret to say it is bird POX and not favus from which the pullet was suffering. I would impress upon you the importance of daily thorough inspection of all her associates, or the crusts will fall unseen and be a menace for years. The infective organism has been recovered from scabs in active condition after five years. If you promptly isolate, and boldly remove, and strongly cauterise the raw surface, you may arrest the spread of the disease.

E. J. L. The pullet was the victim of apoplexy, which was precipitated by straining to lay a broken egg. She was very full of yolks and free from any disease if we may regard the above condition as accidental.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

YORKSHIRE LAYING TRIALS.

ELEVENTH MONTHLY REPORT.

The figures are eggs and points respectively:—

LARGE BREEDERS' SECTION.

White Leghorns—1, R. Rodwell, 728, 3492; 2, F. Irvin, 717, 3325; 3, Maj. A. W. Disney-Roebuck, 693, 3052.

White Wyandottes.—1, Frank Snowden, 927, 4331; 2, R. Rodwell, 801, 3395; 3, W. Crabtree, 765, 3091.

Black Leghorns.—1, Mr.s Paulet, 549, 2629; 2, Lord Dudley Gordon, 594, 2280; 3, Ed. Watkins, 533, 2206.

A.O.V. Light Breed.—1, C. Killingbeck, 676, 2940; 2, Ryhall Mill Poultry Farm, 646, 2468; 3, A. Gawthropp, 415, 1825.

R.I. Reds.—1, Miss D. E Kitchin, 835, 3497; 2, Alderson Smith, 738, 2915; 3, A. Gawthropp, 702, 2783.

Sussex (All Pullets).—1, Mrs. F. Cockshott, 635, 2738; 2, R. S. Williams, 613, 2585; 3, H. D. Bailey, 588, 2339.

Australorps.—1, H. R. Parsons, 541, 2214; 2, Hon. E. Chalorer, 469, 1982; 3, Mrs. E. Weinholt, 460, 1857.

A.O.V. Heavy.—1, H. Thomas, 664, 3052; 2, R. E. Gifford, M.A., 636, 2895; 3, H. Holmes, 562, 2529.

SMALL BREEDERS' SECTION.

White Wyandottes.—1, Chas. Lambert, 228, 1130; 2, Frank Clark, 201, 979; 3, W. Winkley, 172, 796.

A.O.V. Light Breed.—1, W. G. Bullen, 120, 528; 2, J. J. Booth, 118, 523; 3, G. T. Marsden, 85, 468.

White Leghorns.—1, J. H. Gundey, 254, 1177; 2, F. C. Tomlinson, 161, 819; 3, Leonard Ellis, 156, 718.

A.O.V. Heavy.—1, Mrs. W. Bamber, 170, 789; 2, J. Fawcett, 137, 654; 3, W. C. Crossland, 122, 543.

Gift Section.—1, F. Irvin, 111, 535; 2, Davey & Son, 90, 420; 3, H. D. Bailey, 79, 408.

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

SUNDRY POINTS.—Autumn pruning, Black Currants. When we read of "Summer Pruning," we generally associate it with the sunny days of June to August, but there is yet other pruning that can be done in September onwards, and during the autumn days when the temperature and weather, if not so hot, is often more ideal in many ways.

Are we going to have one of those "Indian Summers" to follow the exceptional spell of rain and lack of sunshine that we have experienecd these past two months? Many must be hoping we shall soon have brighter weather, amongst them the fruit grower, for otherwise he knows that the wood of his fruit trees will not be ripening well and immature fruit eyes will be the natural result.

Let us, as far as possible, help all the available sun we shall have to give its beneficial influence to our trees, this we can do by shortening back side shoots (that will eventually be "spurred" in our winter pruning operations), for this lets in much air and sunlight; but where there is a thicket of laterals do not cut away too much wood in one operation, especially if strong growths.

While thus engaged it is a good thing at this season to cut right out some shoots, or branches, where the trees have overcrowded centres, as when in leaf it is so much more easy to realise the crowded condition than when branches are bare of foliage; and at this time it is likewise much easier to notice any dead wood that should be removed at once.

In certain districts the wild birds seem more destructive than in others, especially in destroying the dormant buds of the Red Currants and Gooseberries, so whenever possible it is wisest to leave the pruning of these as late as possible into the winter. With Black Currants the birds seem to do less mischief; so often we are able to start earlier on these. This has an advantage, because if we want to propagate for ourselves more of these bushes it is a good thing to get to work in September on our cuttings.

I certainly like early-struck cuttings when possible (whether fruit or flowers), as they get rooted while soil is warm and then "get away" quickly in the spring. They may be taken any time from the middle of September and onwards up to April.

In choosing cuttings, I prefer young wood, a growth of the current year, although any healthy part of a Black Currant will root under favourable conditions.

A young shoot can be cut into two and both base and tip used when not many cuttings are available, and these may be from six to ten inches long. It is important with Black Currant cuttings that none of the buds are taken off, or we shall get bushes with " Legs " which are not good, although the system is often preferred for Reds and Gooseberries.

By leaving all the buds on the cuttings, those under the ground will thus make bushes with several shoots springing from the soil, for (as I explained when I wrote on pruning Blacks) this method is necessary in order to replace each year some of the old wood, with new shoots from the base.

Just a word respecting the beds for cuttings. Firstly, deeply dig the ground and allow it to settle down before making the trench in which to put them. Place these about six inches apart and see that the soil is firm at the bottom, and also that the soil is pressed well against the base of each piece.

Cuttings taken during the winter and waiting favourable weather for planting can be tied in small bundles and stored in sand or damp moss.

Yearlings when transplanted soon make good bushes. Cut back hard if only one shoot comes through, if two growths cut back one, when more you have the foundation of good plants quickly.

The Ministry of Agriculture and Fisheries, Whitehall, have issued a leaflet No. 377 on " Reversion " or " Nettlehead of Black Currant," which, with the simple illustrations, helps one to easily detect this trouble, and thus avoid propagating from plants likely to spread this disease, for it causes bushes to become so unprofitable that many acres have been grubbed.

In spite of this, and the big-bud trouble, I should prefer to extend my plantation of Black instead of Reds, also because my fairly heavy and damp soil suits them.

Scientific Poultry Breeders' Association.

KEIGHLEY AND DISTRICT BRANCH.

Report for Eleventh Month of Laying Test, which concluded on September 3rd, held at Minorca Farm, Denholme, Bradford. Production has been very good this month, several birds have laid 26 eggs during the 28 days. The health of the birds has been very good. Several birds are moulting and laying at the same time. A 2oz. egg is termed first grade. First 12 second grade eggs are allowed to count. Scores are:—

Light Breeds.—1, Capt. Owen (W.L.), 228 points; 2, S. Lawton (W.L.), 227; 3, H. Buckley (Blk.L.), 213; 4, Mrs. H. Wilson (W.L.), 209; 5, S. Preston (W.L.), 207; 6, W. Bancroft (W.L.), 201; 7, S. Lawton (W.L.), 200; Mrs. J. R. Thompson (W.L.), 200; 8, F. Snowden (W.L.), 199; 9, Mrs. Barker (W.L.), 198; 10, F. Pickles (W.L.), 197.

Other scores are: No. 31 (196), No. 48 (195), No. 34 (192), No. 67 (192), No. 18 (191), No. 60 (188), No. 9 (182), No. 74 (181), No. 38 (156), No. 11 (154), No. 44 (135), No. 37 (135), No. 59 (128), No. 14 (127).

Heavy Breeds.—1, H. Nelson (W.Dotte), 230 points; 2, H. Downsbrough (W.Dotte), 216; H. Kershaw (W.Dotte), 216; 3, H. Rawlinson (W.Dotte), 213; 4, S. Preston (Buff R.), 197; Mrs. Barker (W.Dotte), 197; 5, J. Ellison (R.I.R.), 194; 6, S. Lawton (W.Dotte), 189; 7, B. Atkinson (Barred R.), 185; 8, J. H. Brayshaw (W.Dotte), 178; H. Kershaw (R.I.R.), 178; 9, H. Downsbrough (W.Dotte), 176; 10, Mrs. T. Thompson (R.I.R.), 171.

Other scores are: No. 35 (169), No. 12 (167), No. 10 (159), No. 62 (159), No. 29 (155), No. 63 (152), No. 27 (148), No. 6 (136), No. 30 (122), No. 28 (119), No. 64 (103), No. 22 (80), No. 13 (28), No. 57 (5).

Goat-keeping & Poultry.

By Mrs. EPPS.

Article VI.—FEEDING.

(Continued.)

During the spring, summer and early autumn a goat's food should be any and all kinds of green stuff—nothing comes amiss to her; the harvest of the hedgerow, surplus vegetation of every sort, prunings from rose and fruit trees, all are much relished, and many goats that I know to produce milk in abundance live entirely on this diet during the time of year that it is available. I am often assailed for making this statement, not by people who have any reason to doubt its truth, but by those who think it ought not to be true and that goats should not live in this simple and "uncared for" fashion. All I can say is, that those who are loudest in their complaints as to the way the average cottager keeps his goats are those in whose herds the heaviest mortality occurs and where veterinary attention is most frequent.

Every opportunity should be taken when there is surplus greenstuff about to dry a supply for winter use. In this way considerable economy can be effected. Branches and prunings of trees, pea and bean haulm, sanfoin and lucerne, all make very valuable winter fodder when properly dried and stored. The bark of small branches contains valuable properties, and is always enjoyed by goats. Storage room is sometimes difficult to find over the winter on many poultry farms where the appliances are out of commission until spring arrives, but a miniature Dutch barn can easily be constructed by a handy carpenter, and when it is not in use for storing fodder, it can be used as a hot-weather shelter for goats or poultry.

An important point when feeding goats is to remember that they will not touch contaminated food—hence the need for good feeding from which hay, etc., cannot easily be pulled loose, for all that falls to the ground is wasted. Perhaps this habit of the goat accounts in some measure for her wonderful freedom from disease. If fowls have the use of the same yard or meadowland as a goat, water should be supplied to which the birds cannot have access. I would remark, however, that the plan of running goats over grassland together with poultry is not an ideal one, for intestinal worms can be conveyed to goats in this way. Where goats are stall-fed in small yards with a few fowls running about this danger does not exist, but poultry should not be allowed to scuffle about in the hay intended for goats' fodder.

As with all livestock, the bulk feed supplied must be of the best if the best results are desired; this does not imply that goats require dainty fare in any way, for during summer all coarse greenstuff

(Continued at Foot of Column on Next Page).

French National Laying Test.

Extracted from Ministry of Agriculture's Report of 4th period, 30th December, 1923, to 26th January, 1924.

Notes by Mr. Degois, veterinary surgeon, on the outbreak of Diphtheritic Roup at the above Laying Test.

Avian diphtheria in its two principal forms—oculo-nasal catarrh and foreign growths—is raging with unaccustomed gravity at the 4th Laying Test. We do not intend studying the etiology and pathology of this disease in these notes, but it is our duty to inform the competitors of the sanitary conditions of the test and to convey to them our firm impression that the tide has turned, and that we hope to be of service to them by explaining the treatments employed and the results obtained.

(Follows general information regarding disinfection of pens, inspection of birds on arrival, etc.)

This year a few cases of coryza were discovered from the beginning; the same had happened in the previous years, and one hoped that the infection would subside, gradually, as it had done before, without causing any damage. But in the second period the cases of coryza increased, necessitating the organisation of several isolated pens in which the cases could be treated. We had to treat more than one hundred birds at once, fresh cases coming in regularly and replacing those cured which had been sent on to convalescent pens especially erected for the purpose.

In the third week of December the situation became worse by the appearance of foreign diphtheritic growths, which spread rapidly, gaining many new pens, and accompanying cases of coryza as well. We were obliged to isolate and treat 200 cases at one and the same time.

As a result of strenuous work we were able to avoid heavy casualties, and, although we had to deplore the loss of a certain number, we had the satisfaction of reducing the losses to a strict minimum.

After trying several treatments we decided on the following:—

Oculo-nasal Catarrh.—A 1/200 solution of nitrate of silver, recommended for some time by Prof. Moussu, applied locally to nostrils, beak, throat and eyes. The cure is generally rapid, but some cases resist. Some of these go on laying, but others rapidly decline and die.

(Note.—Since this was written Biological Institute, Merieux—see below—has prepared a vaccine from coryza cases which it recommends in conjunction with the serum for treating cases o oculo-nasal coryza.)

Foreign diphtheritic growths. — Thes growths appear with alarming suddenness one day we found forty fresh cases, althoug an inspection had been made the previous day We tried removing the growths, cauterisin them, but the next day they had begun t grow just as before.

Against this form of avian diphtheria we employed M. Merieux' avian anti-diphtheritic serum The results may be compared to those obtaine with M. Roux' serum in the case of human diphtheria. Without any local treatment, after a subcutaneous injection of from three to four cubi centi-metres of serum the growths become detached in a few days and disappear, leaving slight scar. We thought it more prudent, in consideration of the value of the birds entrusted to us to give a second injection of serum three days afte the first. In one case we even had to give fiv injections of serum before finally eliminating th growths, but we are persuaded that the first injection is in the majority of cases sufficient.

Merieux' serum does not take immediate effect we consider that an improvement does not tak place until 24 to 48 hours later. Up till then th growths continue to develop and increase in size Also in the case of growths in the throat, it i essential to apply local treatment as well, wherea in the case of growths on jaw. tongue, or side of mouth, the serum dispenses with any othe treatment. Since the closing up of the laryn causes instant death by asphyxiation, it is necessary to remove the growths round the larynx twic a day. We found some birds dead the next morning which had had their growths removed fro larynx the previous evening.

It follows that birds affected in the larynx mus be very closely watched until cured.

Injections of serum gave no effect in the case of oculo-nasal catarrh. (See note above: Ne sero-vaccine treatment; and note below.)

M. Merieux' serum is prepared from several microbic root isolated from birds which have died from the various complications attributed to avian diphtheria.

It is possible that certain forms of diphtheritic roup may contain certain microbes not yet figuring in the preparation M. Merieux's serum, in which case the serum would have n effect. It is **also possible** that, on the contrary, certain form of catarrh **may be** effectively combatted by this serum. Thus according to the results obtained at a date posterior to that above report, we consider it advisable to employ the serum such cases.

GOAT-KEEPING AND POULTRY.—Continued

is turned by them to good account. What I woul like to emphasise is, that when winter sets in an hay forms the greater part of a goat's food ever care should be taken to see that the hay is goo quality, and not stored in such a way that it becomes musty and rat-infested.

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Correspondence.

MARKETING OF POULTRY AND RABBITS.

To the Editor of "Eggs."

Dear Sir,—With regard to the letter signed "Forethought" in the current number of "Eggs," it may interest your correspondent to know that the R.S.P.C.A., 105, Jermyn Street, London, S.W.1, can supply a very good snare for catching rabbits on a commercial scale or otherwise, at one penny each.

These have a knot to prevent the noose quite closing up, and are superior to the ordinary snare, both on the score of humanity and also because their use does away with the difficulty of torn limbs and bulging eyes, which reduce the selling value of the rabbit.

Yours faithfully,
PAUL G. 'ESPINASSE.

MARKETING OF TABLE POULTRY.

To the Editor of "Eggs."

Dear Sir,—I read with interest the letter in this week's "Eggs" over the non-de-plume of "Novice."

First of all I must say that "Novice" has started in this industry at about the worst time he could, seeing that his first chicks were only hatched at the end of June.

He must see for the future that he gets the bulk of his produce to be ready for marketing between January and June, when the highest prices are ruling.

Surely he must have missed my repeated warnings to everybody to beware and make preparation to avoid the slump which always has, and will come, at this time of the year. The advice was given two months in advance to enable readers to have plenty of time to make their necessary arrangements.

"Novice" then asks if his chicken will realise the absolute top price of all chicken, i.e., 1/9 per lb.

I do not know the quality of his chicken, but I do not think they would now, were they professionally crammed chicken from Sussex. If they are just ordinarily soft-fed chicken and weighed 4lbs. now, they might make 1/4 per lb. dead weight, and who would be bold enough to forecast for the 4th October?

With regard to the higgler, my advice to "Novice" is that he should send one dozen of his chicken to a market salesman for his advice and opinion, otherwise he will be absolutely in the hands of the Higgler, and that does not spell success for him if he will treat my advice as being as unbiased as a market man can make it!!

If "Novice," or any other reader of "Eggs," cares to get into direct communication with me (Mr. Newman will give my address), I am only too happy to be of service with my advice regarding their particular circumstances. A letter costs 1½d., and the time to write it, but it may mean pounds saved.

Yours faithfully,
A. V. CLARKSON.

25, Woodland Road, Barry Dock, Glam.
10th April, 1924.

Dear Sir,—I am only a backyarder, yet I may say I have learnt already quite a lot from its columns, and am bringing your paper before my fellow-members of the Barry Fur and Feather Society at our next meeting. With anticipatory thanks.

Yours faithfully,
(Signed) F. CURLE.

THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

OUR 1925 REGISTER.

Members of the S.P.B.A., who desire to register their birds in the 1925 Register, should apply for Registration Forms, which will be ready on 10th September. These forms can be obtained from the Editor, Mr. H. Mudie-Draper, 25, The Chase, Clapham, S.W.4. They must be completed and returned to him not later than 16th October. Members are permitted to register two pens free of charge, but one shilling per pen is charged for Registration for all pens above two. A separate Registration Form is necessary for each pen.

Our Editor is busily engaged in making arrangements to produce the Register early in December, and already quite a number of most useful articles from the pens of experts have been promised. If any of our members have discovered anything relating to Poultry Farming during the year, which would be of interest and profit to our readers, the Editor would be glad to consider the publication of such articles, which should preferably be typewritten and not more than 1,500 words in length.

Our Advertising Manager is now ready to receive advertisements for the Register at the following rates:—

To S.P.B.A. Members.	£	s.	d.	**To Non-Members.**	£	s.	d.
¼ Page	1	5	0	**¼ Page**	1	10	0
½ Page	2	5	0	**½ Page**	2	15	0
Whole Page	4	0	0	**Whole Page**	5	0	0
Breeders' Cards	0	8	0	**Breeders' Card**	0	8	0

We would impress upon our advertisers the fact that the smaller quantity of words the more striking their advertisement will be.

All matter for advertisements and enquiries about the same should be sent to S. H. Burles, 94, Farncombe Street, London, S.E.16. The latest date for receiving advertisements is 15th October. This is necessary in order to get the Register published early in December.

We can promise our members a Register well up to, if not surpassing, all our former issues—at least that is our aim.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Edwards, H. E., Lyng House, Thetford, Norfolk.
Oliver, Mrs. Wm., 44, Western Road, Bexhill-on-Sea, Sussex.
Foster, Miss W. L., "Barholme," Babbacombe, S. Devon.
Townley, E. P., New Barn Farm, Woodcote, Reading.
Hilton, Albert, 215, Heaton View, Unsworth, Whitefield, Manchester.
Prickett, Geo. C., 242, Green Lane, Heaton Norris, Stockport, Cheshire.
Montgomery, A., Errol Road, Invergowrie, Perthshire.
Grundy, P., 3, Pemberton Street, Little Hilton, Nr. Bolton.
Swiffin, Miss D., Old Standen, Benenden, Kent.
Shillaker, Mrs. M. M., Baston Fen, Market Deeping, Lincs.
O'Connor, Miss K. F., The Rectory, Newbridge, Co. Kildare, Ireland.
Townsend, J., Red Heath Poultry Farm, Silverdale, Staffs.
Plunket, Miss C. G., Glenmore, Normandy, Surrey.
Greenwood, T. W., The "Serial" Laying Test, Bredryte P. Farm, Winthorpe, Skegness.
Tomlinson, J., 10, East View, Kilbrook, Nr. Colne, Lancs.
MacGillycuddy, A. J., Danesfort, Killarney, Ireland.
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Pine, W. H., "Carngorm," Four Marks, Nr. Alton, Hants.
Downie, Thos., Goede Gift, Simons Town, South Africa.
Wainwright, W., The Van, Hemingfield, Nr. Barnsley, Yorks.
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Logie, J. R., Blackhill, Kirkwall.
Gavin and Spence, Whitenap P. Farm, Romsey, Hants.
Dempster, Mrs. K., Woodleigh, Knutsford, Cheshire.
Allewell, Arthur, Royalty Farm, Eastville, Nr. Boston, Lincs.
Vickers, J. H., Broadfield, Beaconsfield.
Harrop, Miss E., "Lanka," Upton Road, Moreton, Cheshire.
Ledward, D. W., Cross Roads Cottage, Greater Felcourt, East Grinstead.
Watanabe, Yoneo, 28, Lyndhurst Road, Hampstead, London, N.W.3.
Hardy, Capt. A. V., Sandling Park, Hythe, Kent.
Nicholas, E. H., 9, The Worthings, Ford House Lane, Stirchley, Birmingham.
Carrodus, V., "Valetta," Barkham Road, Wokingham, Berks.
Scott, Wm., Feastown, Sanday, Orkney, N.B.
Bradridge, T., Purples Farm, Little Saling, Nr. Braintree, Essex.
Holyoake, Wm., Bat and Ball Poultry Farm, Chiddingly, Sussex.
Brewster, Bernard J., Orchard Lodge, Rockland St. Peter, Attleborough, Norfolk.
Kay, H. E., Robin Hood, Baslow, Bakewell.
Spray, Percy W., Rectory Farm, Beckingham, Newark-on-Trent.
Pomfret, H., 44, Small Holdings, Knuzden, Nr. Blackburn.
Armstrong, Mrs. E., Rosslare P. Farm, Rosslare, Wexford, Ireland.
Maguire, T. J., Clara Villa, 31, Claremont Road, Sandymount, Co. Dublin.
Anderson, J. W., "Roseneath," Kilmaurs, Ayrshire.
Heath, G., "The Hollies," Cypress Road, Titchfield Common, Fareham.
Townend, Paymaster, Commander A. B. S., Marrowells, Springfield, Chelmsford.
McPhait, John, No. 12 Holding, Brownsfield, Inchinnan, Renfrew.
Green, Ralph, Foston, Leicester.
Molle, Norman F., Mains, West Moors, Wimborne, Dorset.
Elliott, P. C., 85, Terverners Road, Peterborough.
Murphy, Mrs. W. M., Thatcham P. Farm, Gypsy Lane, Thatcham, Berks.
Hunt, H. R., Parton Lane, Churchdown, Glos.
Snow, H. G., 40, Keynsham Street, Cheltenham.
Jackson, Harold, St. Kilda, Brick Kiln Lane, Hamstead, Nr. Birmingham.
Smith, F. Leslie, "Bonchurch," 15, St. Deny's Road, Southampton.
Fox, Rev. W. R., The Glebe House, Wheatley, Oxford.
Paston, G. E., 7, Deerhurst Road, Streatham, London, S.W.16.

Turkeys.

IMPROVING THEIR STAMINA.

By BERNARD REDDAWAY, M.S.P.B.A.

The British turkey industry has not attained the size which it rightly should. Year after year large numbers of foreign birds flood our markets, and although it would not be possible totally to stop them from coming to the country, it should not be difficult to reduce their numbers appreciably by setting up greater competition.

The chief obstacle to the progress of the industry is the very high cost of production and the large chicken mortality. When a fowl or duck is raised for market only the cost pertaining directly to its raising has to be considered. That is not the case with the turkey, because the breeding birds do not pay for themselves with their eggs, so that the cost of keeping them has to be added to the cost of producing the market birds. That is not as it should be.

In the wild state a fowl only lays two clutches of thirteen eggs each in a year; yet by selective breeding whole flocks will lay a first year average of nearly 200 eggs. Then why shouldn't the turkey be selected for its egg laying qualities, as well as for its table properties? It should be quite possible, if great care is taken, to make it lay enough eggs to pay for its keeping, without impairing it for the table. For this purpose the turkey hens should be trap-nested, as far as it is possible, and their records should be considered when the breeding pens are made up.

It is quite impossible to have strong, quick growing turkeys if the very best birds are not used for breeding. Turkey-keepers must *not* be tempted, when the prices are good, to part with their best and heaviest birds, for although at the time their balance sheet will make good reading, they are only laying up trouble for themselves in the future.

Half the cause of the present tendency that young turkey chicken have of getting various deadly diseases is the use of weak immature birds for breeding. Only the best well-grown birds shou'd be allowed in the breeding pen.

There should be quite a good sale for turkey eggs, as the supply ought to help to make a demand for them. Twenty years ago very few people would eat duck eggs, now there is a large and ever-increasing demand for white eggs, although people don't very much like green ones.

The best young birds should be separated from the rest when they are about four months of age, and fed on a diet fit for stock birds. They should be given as much range as possible, and treated with the same care that is bestowed upon the most well-bred pedigree poultry. If this is done less should be heard about the weakness of turkeys, and the difficulty of rearing them.

Oldfield, Eversley Park Road, Winchmore Hill.

Dear Sir,—I may say I have only just discovered that "Eggs" is just the book I have been looking for.

Yours truly,
(Signed) J. DAFFARN.

POST MORTEMS—Continued.

G. P. The fowl had cancer of the variety known as Carcinoma. She had long been affected, and it was only when the pressure and strain upon the organs attached brought on peritonitis that she became outwardly ill, and attracted your attention. Let me anticipate your questions, and say that the disease is not known to be contagious as between birds in association, and that others sharing her bed and board need not be in danger. There are what are known as cancer houses, in which successive occupiers have conracted the disease, but so far the Cancer Commission has not discovered the causal organism nor the method of spread. Your reference to others—"This has happened twice before"—is a little ambiguous. You don't mean that this bird had twice failed in health, but that two others appeared to be similarly affected, do you not? They would much more likely have been ovarian troubles.

R. C. P. The pullet was tormented to death by a variety of biting louse. There were countless thousands of them (Menopon biseriatim). In some circumstances they carry toxins, but such heavy infestation by itself poisons the host, besides depriving it of sleep. The body was emaciated, but there was no organic disease. If you will refer to my article in "Eggs" of July 30th you will see methods of dealing with these parasites described. I am of opinion that your birds would recover if ridded of these pests.

E. R. Please excuse me for not being able to decipher your name. The post-mortem examination of the goose showed emaciation, following on uraemic poisoning or self-poisoning by the urea passing back nto the circulation. This was caused by a disease of he kidneys, unmistakeable to the naked eye, but its cause not known. All the tubules of the numerous obes were completely blocked with solid urea, so that they appeared like grey limestone. It is not known if t is infectious. I wish I could write you a more helpful letter, but so much investigation is required into hese diseases that I cannot hope to live long enough o know. Comparative pathology would point to some poisonous plant as setting up primary inflammation in he kidneys, but this is only my deduction.

D. H. The viscera afforded unmistakable evidence of generalised tuberculosis, and because it is an infecious disease, and needing immediate attention, I am doing my part, although you have not done yours; which you will see by reference to the excerpt from "Eggs" herewith. Other fowls, as well as pigs, are liable to become infected by the droppings, and ubercle bacilli distributed about the place. A thorough clean up should be instituted, and the place disinfected. Fresh lime in lumps a foot apart should be laid upon the soiled ground, and allowed to slake in the weather, and be raked over level. You will find some useful recommendations in leaflet No. 78, issued free by the Ministry of Agriculture, which you are ecommended to obtain by writing to the Secretary, 0, Whitehall Place, S.W.1. Please do not send mangled remains, but whole fowls, as we cannot always diagnose from torn entrails.

H. W. A. The cause in the case of the three Light Sussex chicks was an intense inflammation of the bowels, caused by the presence of numerous nearly miscroscopic nematode worms. Seasonal influence explain why your earlier hatches escaped, late hatched birds being also less resistant. Treatment of cases as far advanced as these three is hopeless, but one ounce of powdered aniseed in each pound of mash may be of service to those less heavily infested, and should be continued for a week.

THE NORTHERN UTILITY POULTRY SOCIETY LAYING COMPETITION, 1923-24.

TENTH REPORT—11th JULY to 6th AUGUST, 1924.

Only six days have been fine during the current month, four of these being in the first five days; on other occasions it was more like winter-time than summer, but, on the whole, it has been good for egg production.

Moulting has become more pronounced, although in a good many cases the birds continue to lay; no doubt this is attributable to the cool weather, and, given a continuation of it, a lot of competitors appear likely to continue laying for the last eight weeks. Considerable changes may be expected in the positions this month, when limits are being reached with second-grade eggs.

White Wyandotte No. 361 has added 22 to her previous total, bringing her score to 230 in the forty weeks. The most notable performance for the month comes from pen 13, White Leghorns (Mr. H. Crawshaw), with a score of 111 first-grade eggs, this bringing him into first position in the open White Leghorn section. The health of the birds has been good.

DUCK SECTION.

Generally, results have been poor this month, two-thirds of the ducks are having a complete moult, all five of the leading pens being involved, and only 14 eggs have been added to their score; but it seems very likely they will soon come on again. Miss Barr has the distinction again this month of the highest total, four ducks laying 96 eggs, the other being in moult. Mr. Oscar Brown comes second with 93 eggs from four ducks. Nos. 15, 20 and 38 have each laid 28 eggs this month. All are in good health.

EGG PRODUCTION OF LEADING PENS.

Section No. 1.—White Leghorns.—1, Harry Crawshaw, 835 eggs; 2, Robert Henry Fryers, 811 eggs; 3, Jethro Birtwistle, 848 eggs.

Section No. 2.—White Wyandottes.—1, James Hodgson, 854 eggs; 2, Leslie Williams, 844 eggs; 3, Harold R. Parsons, 784 eggs.

Section 3.—Any Other Variety (Non-sitting).—1, G. B. Metcalfe (B.L.), 793 eggs; 2, P. K. Berry (B.L.), 776 eggs; 3, Lady Latymer (Br.L.), 685 eggs.

Section No. 4.—Any Other Variety (Sitting).—1, P. K. Berry (R.I.R.), 809 eggs: 2, Mergerison's (Rishton) (B.O.), 766 eggs; 3, Walter Dodgeon (R.I.R.), 752 eggs.

Section No. 5.—Small Breeders.—1, Mrs. A. Stow (W.L.), 890 eggs; 2, T. Lindley (W.L.), 837 eggs; 3, Richard Harrison (W.L.), 791 eggs.

Section No. 6.—Championship (10 Birds).—1, J. A. Rigby (R.I.R.), 1600 eggs; 2, G. B. Metcalfe (R.I.R.), 1591 eggs; 3, G. B. Metcalfe (B.L.), 1568 eggs.

Section No. 7.—Ducks.—1, Major J. C. Dugdale (K.-C.), 945 eggs; 2, Oscar C. Brown (K.-C.), 886 eggs; 3, Mrs. M. G. W. Malet (K.-C.), 826 eggs.

SECOND MIDDLESEX COUNTY LAYING TEST.

Being held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR TENTH MONTH.

Light Breeds (Single Birds).—1, J. and A. Moore (B.L.), 189 eggs; 2, Roebuck and Illingworth (B.L.). 182 eggs; 3, J. A. Howarth (W.L.), 176 eggs; 4, Major Kingscote (Anoona), 171 eggs; 5, F. J. Betts (W.L.), 161 eggs; 6, Mrs. Paulet (B.L.), 147 eggs.

Heavy Breeds (Single Birds).—1, Mrs. Drew (B.R.), 186 eggs; 2, H. J. Veeger (L.S.), 185 eggs; 3, J. A. Howarth (W.W.), 178 eggs; 4, Lady D. Fraser (R.I.R.), 188 eggs; 5, F. Short (R.I.R.), 174 eggs; 6, Mrs. M. Rogers (R.I.R.), 174 eggs.

Light Breeds (Pairs).—1, Davey and Son (B.L.), 273 eggs; 2, W. H. Hawkes (W.L.), 289 eggs; 3, L. C. Turnill (B.M.), 255 eggs; 4, Mrs. Crookes (W.L.), 248 eggs; 5, E. and W. A. Franey (W.L.), 284 eggs; 6, F. C. Tomlinson (W.L.), 276 eggs.

Heavy Breeds (Pairs).—1, A. D. Prince (R.I.R.), 359 eggs; 2, P. E. White (B.R.), 344 eggs; 3, W. Claughton Douglas (W.W.), 344 eggs; 4, Major G. T. Williams (R.I.R.), 339 eggs; 5, E. Bland (W.W.), 322 eggs; 6, G. A. Dawson (R.I.R.), 312 eggs.

H. Winch leads the Cross Section with 163 eggs.

(Mrs.) LILIAN SMITH, Manageress.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, SEPTEMBER 5th, 1924.

GRAIN AND FEEDING STUFFS.—The few samples of English wheat on offer sell readily but good milling samples are conspicuously absent. London again quotes 12s. 3d. per cwt. as the average, but this price is barely maintained; at the other markets included in the report there has been insufficient new wheat on offer to justify quotations. Imported wheat is in better request and prices have recovered somewhat, except at Liverpool. Really good samples of English malting barley are extremely scarce and are likely to remain so; up to 18s. 9d. per cwt. is paid for finest lots, while ordinary samples which mostly lack colour, make from 12s. 6d. per cwt. upwards, according to quality. Feeding barley is scarce and firm, while imported descriptions are dearer. Fair quantities of new English oats are available, but the condition, especially of white oats, leaves much to be desired. Imported oats continue to show a firmer tendency, while maize is also dearer, in spite of good supplies.

Milling offals continue in request and prices are firm, while meals continue to advance, maize meal averaging £11 2s. 6d. per ton, or 5s per ton more than last week. Linseed cakes are quiet, but firm, while cotton cakes are very scarce.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s; Hull, £7 7s; Liverpool, £7 15s; London, £8. Broad Bran: Hull, £8 17s; London, £8 17s. Middlings: Fine (Imported): London, £10 7s; Coarse (British): Bristol, £11 2s; Hull, £10 5s; Liverpool, £10; London, £9 10s. Pollards (Imported) Bristol, £9; Hull, £7 15s; Liverpool, £8; London, £8 7s. Rice Bran: Bristol, £8 10s; Liverpool, £8 10s. MEAL.—Barley Meal: Bristol, £13; Hull, £13; London, £13 7s. Maize Meal: Bristol, £11 10s; Hull, £10 12s; Liverpool, £10 12s; London, £11 15s. Maize Germ Meal: Bristol, £11 10s.; Hull, £11; London, £11. Maize Gluten Feed: Bristol, £11 15s; London, £10 10s.

EGGS AND DEAD POULTRY.

The best grades of eggs are less plentiful and prices are higher, 1st quality English and Irish averaging 20s. 9d. and 17s. 6d. respectively per long hundred, against 19s. 3d. and 17s. last week. The lower grades are also dearer. Dead poultry is fairly steady at about late rates, 1st quality young fowls averaging 1s. 6d. per lb.

Week-end prices—Eggs (per 120): British: 20s 0d, 18s 6d; Irish: 17s 6d, 17s 0d; Danish: 20s 6d, 16s 6d; Dutch: 22s 6d, 18s 9d; Italian: 17s 0d, 16s 6d; Belgian: 18s 0d, 17s 3d; Russian: 13s 0d, 10s 0d; Chinese: 13s 6d, 12s 0d; Lithuanian: 15s 6d, 14s.

Dead Poultry (per lb.): Fowls—Surrey: 1s 9d, 1s 4d; Irish: 1s 4d, 1s 0d; Others: 1s 7d, 1s 2d. Ducks: 1s 2d, 1s 0d.

EGGS.

Per Doz.—Ashford: First, 2s 4d; Second, 2s 3d. Birmingham: 2s 0d; Second, 1s 9½d. Bridgwater: First, 2s 1d. Carlisle: First, 2s 2d. Chelmsford: First, 2s 3½d; Second, 2s 2½d. Denbigh: First, 2s 3d; Second, 2s 2d. Derby: First, 2s 0d. Dorchester: First, 2s 1½d. Exeter: First, 2s 0d. Hereford: First, 1s 9d. Ipswich: First, 2s 3d; Second, 2s 0d. King's Lynn: First, 2s 0d; Second, 1s 11d. Lincoln: First, 2s 0d. Llandilo: First, 1s 10d; Second, 1s 9d. Newport (Mon.): First, 2s 1d.; Second, 2s 0d. Norwich: First, 2s 1d. Oswestry: First, 2s 2d; Second, 2s 1d. Penzance: First, 1s 9d.; Second, 1s 8d. Salisbury: First, 2s 2d; Second, 2s 1d. Shrewsbury: First, 2s 1d; Second, 2s 0d. Skipton: First, 2s 0d. Truro: First, 1s 9d; Second, 1s 8d. York: First, 2s 2d; Second, 2s 1d.

FOWLS.

Per lb.—Birmingham: First, 1s 4d; Second, 9d. Derby: First, *4s 9d; Second, *3s 0d. Exeter: First, 1s 6d. Hereford: First, 1s 4d. Ipswich: First, 1s 10d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.):

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 10th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

DRIED YEAST.

To the Editor of "Eggs."

Dear Mr. Newman,—In your issue of "Eggs" of September 3d, page 159, you mention the cost of Dried Yeast as being £2 per ton. This should be, of course, £22 per ton. I am afraid the day is not far distant when Dried Yeast for a variety of purposes will make even more money than this figure. We seem to be selling it very readily to-day at our figure of 22s. per cwt., delivered.

Yours faithfully,

THE ENGLISH GRAINS CO., LTD.

Burton-on-Trent.

First, 1s 10d; Second, 1s 7d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 3d; Second, 1s 0d. Derby: First, *5s 0d; Second, *4s 0d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

* Per Head.

EGGS
The Official Organ of the Scientific Poultry Breeders' Association.
Wednesday, September 17th, 1924.

Editorial.

VITAMIN "A" DEFICIENCY.

(Continued.)

The final results obtained in the different pens ere :—

Pen 1.—Basal ration only (control).—Two fowls ith typical lesions were found on August 1st—the e hundred and fifth day. One had from five to n pustules in the pharynx and the other a slight ection of both eyes. One fowl died on September th from rupture of the vent. The fourteen re- aining were either sick with, or dead from, nutri- onal disease by September 14th—one hundred and ty-ninth day. All were dead by October 3rd, e one hundred and sixty-eighth day. In two that owed typical urate kidneys, on autopsy, a nasal scharge was the only ante-mortem symptom, and one emaciation. Mouth lesions alone occurred four cases, both pustules and ophthalmia in five ses, and ophthalmia alone in two cases. All had discharge from the nostrils, and two had dis- nsion of both infraorbital sinuses.

Pen 2.—Basal ration plus salts mixture.—One d died on July 5th from chronic coccidiosis. The lneys appeared slightly more pale than is normal, t could not be considered as typical of nutri- nal disease. On August 1st, the one hundred d fifth day, definite pustules were found in one. August 29th, the one hundred and thirty-third y, all of the remaining fourteen birds had be- ne sick and three had died. All were dead from tritional disease by September 29th, the one ndred and sixty-fourth day. In one of the dead only ante-mortem symptom was emaciation, typical "urate" kidneys were found on opsy. In five cases pustules only were found, seven cases both pustules and ophthalmia, and one case ophthalmia only. Kidney changes ical of nutritional disease were found in all. had a nasal discharge, and in four there was tention of the infraorbital sinuses.

en 3.—Basal ration plus cod liver oil.—Except a nasal discharge, which was present in twelve ls some time during the experiment, all birds ained healthy until October 10th, when the eriment was terminated.

en 4.—Basal ration plus yeast.—One bird died denly on May 21st. Autopsy revealed the neys filled with urates and a deposit of urates the surface of the heart, pericardium, and all of the abdominal organs. It was thought that this condition might have resulted from yeast feeding rather than from nutritional disease. A second bird that died on June 29th exhibited similar lesions. Death was attributed to the same cause. The third fatality occurred on June 3rd. Marked emaciation from an undetermined cause was the only abnormality found.

The first definite indications of nutritional disease were observed on July 20th, the ninety-third day, when typical pustules and ophthalmia of both eyes were found in one bird. This fowl quickly became extremely emaciated and died on July 31st, the one hundred and fourth day. Spotted urate kidneys were found on autopsy. The disease progressed with such rapidity in this pen that all had sickened, and six more had died by August 29th, the one hundred and thirty-third day. All were dead by September 21st, the one hundred and fifty-sixth day. Five cases exhibited pustules only, and seven both pustules and ophthalmia. Typical urate kidneys were found in all, and a deposit of urates on the surface of the abdominal organs in one of these. A nasal discharge was present in all, and distention of the infraorbital sinuses in four.

Pen 5.—Basal ration plus orange juice.—One bird died from an undetermined cause on May 31st. The first evidence of nutritional disease was a slight ophthalmia in one bird on August 1st, the one hundred and fifth day. All of the fourteen remaining had become sick, and two had died by September 7th, the one hundred and forty-second day. All except two, which were discovered to be eating eggs, were dead by October 3rd, the one hundred and sixty-eighth day. There were seven cases with pustules alone, and seven with both pustules and ophthalmia. Nasal discharge occurred in all. Typical urate kidneys were found in all that died.

Pen 6.—Basal ration plus cod liver oil and yeast. —One bird died from chronic coccidiosis. A nasal discharge was present for a short time in one. Otherwise all birds in this pen remained healthy until the termination of the experiment on October 10th.

Pen 7.—Basal ration plus cod liver oil and orange juice.—Three deaths occurred in this pen, one from heat stroke, one from chronic coccidiosis, and one from strangulation. Eight birds had a nasal discharge of short duration. No other evidence of disease of any kind appeared.

Pen 8.—Basal ration plus yeast and orange juice. —One bird died on July 21st from chronic coccidiosis. On August 1st, the one hundred and fifth day, five fowls showed definite symptoms of nutritional disease. Three had pustules only, and two both pustules and ophthalmia. All had sickened, and six had died by August 29th, the one hundred and thirty-third day. All had died by September 24th, the one hundred and fifty-ninth day. There were five cases of pustules alone, seven of pustules and ophthalmia, and two of ophthalmia alone. A nasal discharge was present in all, and distention of the infraorbital sinuses of one. Autopsy showed typical urate kidneys in all cases.

Pen 9.—Basal ration plus cod liver oil, yeast and orange juice.—Three deaths occurred in the pen, one from chronic coccidiosis, one from ruptured yolk, and one from leukenia. Nine of the fowls had a nasal discharge some time during the experiment. Aside from the preceding, the birds all remained healthy.

Pen 10.—Basal ration plus buttermilk.—The first death occurred on May 15th from an undetermined cause. Symptoms of nutritional disease were observed in two fowls on August 13th, the one hundred and seventeenth day. Eight other fowls subsequently developed lesions, making a total of ten cases. Two of these died. The remainder still had lesions, but were otherwise apparently healthy when the experiment was terminated on October 10th. Two fowls which had exhibited no symptoms died. Typical urate kidneys were found in both, and urate deposits on the heart and abdominal organs of one. Two fowls remained healthy throughout.

Pen 11.—Basal ration plus lawn clippings.—Seven fowls had a nasal discharge of short duration some time during the experiment, but otherwise all remained healthy.

A tabulated summary of the experiment is given in Table 2.

Discussion of the Experiment.—With the exception of seven birds, which died from other causes, all of the seventy-five birds in the five pens in which the basal ration was fed alone or supplemented by the salts mixture, yeast, orange juice, or yeast and orange juice, developed characteristic pustules in the mouth and pharynx, ophthalmia, or kidney lesions. Sixty-six of these died and two were living at the termination of the experiment, although pustules were still present in both. These two fowls were found to be eating eggs, which very possibly supplied sufficient Vitamin A to prevent death.

In the one pen in which buttermilk was fed, nutritional disease affected twelve birds, only four of which died. Analyses of several samples of the buttermilk showed a butter-fat content of from 0.1 to 0.5 per cent. This very probably supplied sufficient Vitamin A to modify the disease in this pen.

The lesions in the eighty birds affected were distributed as follows:—Thirty-five, or 43·75 per cent., had pustules only; fourteen, or 17.50 per cent., had ophthalmia only; twenty-five, or 31.25 per cent., had both pustules and ophthalmia; and six, or 7.50 per cent., had kidney lesions only. Definite kidney lesions were found in all on autopsy.

On the other hand, all of the seventy-five birds in the five pens in which the basal ration was supplemented by cod liver oil, cod liver oil and yeast, cod liver oil and orange juice, cod liver oil, yeast and orange juice, or lawn clippings, remained entirely free from all the symptoms and lesions which characterise the nutritional disease.

Conclusions.—These results should justify the conclusion that the disease is due to Vitamin "A" deficiency.

The possibility that it is Vitamin D rather than Vitamin A in the cod liver oil that prevents the development of this disease would seem to be controverted by the following:—

First.—The similarity of the ophthalmia to that occurring in rats fed a ration deficient in Vitamin A, and the total lack of any symptom of rickets suggestive of Vitamin D deficiency.

(Continued at Foot of Column on Next Page).

TABLE 2.

TABULATED RESULTS OF EXPERIMENT TWO.

STARTED APRIL 18th, 1923—TERMINATED OCTOBER 10th, 1923—15 PULLETS IN EACH PEN AT START.

Pen.	Ration.	Day 1st Nut. dis. symptom.	Day 1st Nut. dis. Death.	No. with pustules.	No. with opthal.	No. with both pus and oph.	Tot. sick with nut. disease.	Tot. died of nut disease.	Died of other causes.
1.	Basal ration only (Control)	105th	108th	4	5	2	14(a)	14	1
2.	Basal plus salts mixture	105th	122nd	5	7	1	14(b)	14	1
3.	Basal plus cod liver oil	None	None	None	None	None	None	None	None
4.	Basal plus yeast	93rd	104th	5	0	7	12	12	3
5.	Basal plus orange juice	105th	136th	7	0	7	14	12(c)	1
6.	Basal plus cod liver oil and yeast	None	None	None	None	None	None	None	1
7.	Basal plus cod liver oil and orange juice	None	None	None	None	None	None	None	3
8.	Basal plus yeast and orange juice	105th	112th	5	2	7	14	14	1
9.	Basal plus cod liver oil and yeast, and orange juice	None.	None	None	None	None	None	None	3
10.	Basal plus buttermilk	117th	124th	9	0	1	12(d)	4	1
11.	Basal plus lawn clippings	None	None	None	None	None	None	None	None

(a) In three no definite symptoms were observed, but characteristic lesions were found.

(b) In one no definite symptoms were observed, but characteristic lesions were found on autopsy.

(c) Two with lesions still living when experiment terminated.

(d) In two fowls no definite symptoms were observed, but characteristic lesions were found on autopsy.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

LEG-WEAKNESS.

I have received the following letter from Mr. R. P. Yates. As I have to contribute an article to the Register on the subject, I will not comment on it now:

BROODERS AND LEG-WEAKNESS.

"Dear Sir,—May I add my experience this year on this all-important subject.

My first hatch of 400 White Leghorn chicks on April 4th were placed under hovers, with chaff as litter. The hovers were placed so that while there was a good circulation of air round them, no ground draughts were probable.

About the tenth day several chicks started to go off their legs, and in all I lost some 150 from this cause, in spite of all feeding being out of doors, and the weather quite reasonably fine.

Having read in 'Eggs' about bottom ventilation, I made perforated zinc frames, which were placed, in some instances, over holes 1½ inches in diameter, drilled through the brooder house floor, others mounted two inches off the ground. Over these were placed one thickness of hessian, lightly covered with chaff. The hovers were placed on these, and similar precautions against ground draughts taken. The hessian was shaken out each day. I reared some 750 chicks in this manner, and did not lose one through leg-weakness. My feeding throughout has been on Mr. Newman's excellent formulae. It is an interesting fact that the chicks reared under hovers, placed over holes drilled in the floor, were in every case a better lot than those where the frame was merely raised off the ground."

INCUBATION.

A member writes that he bought 200 eggs for incubation this spring. The hatch was disastrous, but the point is that when examining those which died in the shell, he found several completely dried up, although the chick was perfectly formed with the down on it. In others, on the contrary, the chick completely filled the shell; indeed, he says, they seemed too big for the shell, and now he asks what caused the difference between the eggs, and what I would have done in such a case.

It would not have been possible to do anything, but we may deduce two things from this experience. In the first place some of the eggs were obviously stale; secondly, the incubator was badly ventilated.

Taking the dried up ones first. It is hardly necessary to say that the moisture in the egg serves to keep the membranes in a moist condition. When they are so, there is free expulsion of the carbon-dioxide exhaled by the growing embryo, and a free intake of oxygen. When, through evaporation, this moisture is lost, the membrane becomes impermeable of gases, and the chick dies in the shell. The intake of oxygen is in direct proportion to the output of carbon-dioxide.

With regard to the eggs in which the chick filled the shell, this was not the effect of too much moisture, but was due to a stagnant atmosphere in the incubator, which prevented the free escape of the carbon-dioxide.

The deductions we would make would be: That a high percentage of the loss was due to stale eggs, and the rest to the badly-ventilated incubator. The latter could be remedied, and the former provided against.

VACCINES FOR DIFFERENT FORMS OF ROUP.

In the August 20th issue of "Eggs" I asked whether a different Vaccine would be necessary for different forms of Roup, as medical men had assured me that failures with vaccines against colds in human beings has been due to the fact that there are so many different forms of cold that no single vaccine has been discovered which is effective in every case.

The following is a reply received to-day. The answer appears to be indefinite, but as I promised not to comment on it, I will say nothing further.

In regard to the question as to whether an attack of Diphtheritic Roup does not confer immunity, the writer's reply will be read with interest, but medical men have told me that in the case of such a disease as Scarlet Fever, there is immunity after one has suffered from an attack. I asked the question because when I mentioned that Professor Fratteur told me that he had found a strain of birds which were immune to Diphtheritic Roup, one of the advocates of vaccines said this immunity was almost certainly conferred by a mild attack of the disease, which appears to contradict the statement in the letter given below, or, shall

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EDITORIAL.—Continued.

Second.—Green food proved as effective as cod liver oil, while the results of experiments of Hughes showed that green food would not prevent development of symptoms of rickets.

Third.—Exposure of the fowls to an abundance of direct sunlight through the open front of the houses did not prevent the development of this disease, although Hughes found that a short daily exposure to direct sunlight would prevent rickets.

Vitamin A deficiency as the cause might also explain the apparent infrequent occurrence of this disease during winter months in middle Western and Eastern States, where yellow corn in poultry rations is more extensively used than in California.

It would seem, therefore, that this disease, which the writer has previously designated as **a nutritional disease resembling roup,** should now be designated **a nutritional disease caused by Vitamin "A" deficiency,** although the name **nutritional** roup might be more suitable for use by poultrymen.

There is little likelihood of this disease ever occurring in any flock plentifully supplied with green food, no matter how deficient in sources of Vitamin A the ration may otherwise be. In time of scarcity of green food, the division of the available daily supply into several feedings of small amounts and the liberal use of yellow corn and buttermilk in the ration would, in all probability, at least partly, compensate for the deficiency.

I say, the letter contradicts the opinion expressed above?:—

"Dear Sir,—I will try to answer the question raised in 'Eggs' of August 20th. Would a different vaccine be necessary for each form of Roup? (See answer in previous letter to Mr. Newman).

As an attack of diphtheritic roup does not confer immunity, the bird often having a bad attack, although not so severe as the first, months later, what degree of immunity is conferred by a vaccine?

It is a well-known fact that both in human beings and in domestic animals, a disease can recur at any interval after the first attack—though generally with less intensity. Degree of immunity is unknown. Whereas in the case of vaccines, these are known and proved by the preparers of same to confer an immunity of definite duration, the minimum of which is generally round about one year.

Is it advisable to breed from birds having suffered from diphtheritic roup, because it has been known to find growths—**supposed to be diphtheritic**—on certain birds after cure?

Some time ago an illustrated article appeared in the 'National Poultry Journal'—a translation from a number of La Vie a la Campagne—in which the writer gave the results of an experiment conducted on his farm, by which he proved that it is perfectly safe to breed from birds which have been cured of diphtheritic roup provided the birds are in a healthy state when bred from. That is to say, it may be possible to breed from a bird showing growths, provided its stamina is such that it does not affect the germination and general health of the egg to be incubated.

Yours faithfully,

M. M."

PROGRAMME OF THE POULTRY CONFERENCE.

Members' attention is drawn to the very interesting programme of the Poultry Conference to be held at the Midland Agricultural and Dairy College, Sutton Bonnington, Loughborough. We have a goodly number of S.P.B.A. members in the district, and I am sure they will appreciate the programme prepared and also the pleasure of meeting one another.

LANCASHIRE UTILITY POULTRY SOCIETY.

Mr. C. Parker, the Secretary of the International Egg-Laying Test, conducted by the Lancashire Utility Poultry Society, informs me that they have still a few vacancies, and if any of our readers are desirous of entering they should at once communicate with him, or if they will write to me I will send them an entry form. Mr. Parker's address is Fox Street, Preston, Lancashire.

Rosehoe, Hythe, Kent.
27th August, 1923.

Dear Sir,—I greatly appreciate the paper, and find it an immense help. My trouble has been halved, and the results most encouraging by following "Modern Poultry Feeding," and putting all my chicks from the first day on Experiment IV. Out of 50 chicks hatched the mortality has been nil, and they have always looked in the best of health and vigour.

Yours truly,

(Signed) MABEL H. MOON.

THE NATIONAL POULTRY COUNCIL.

I wonder if the members of the S.P.B.A. and readers of "Eggs" realise that at the meeting of the National Poultry Parliament, recently held at Salisbury, a very great honour was conferred upon Mr. Newman when he was installed President of the National Poultry Council. It is the highest honour that the industry can confer, and we are all proud that the distinction has come to Mr. Newman, for surely no man has more worthily deserved it.

The S.P.B.A. enjoys the reflected glory of its Secretary's high position, and the members of the Society can best record their appreciation by supporting Mr. Newman in the arduous task that lies before him in carrying out the duties of his high office.

During the short life of the National Poultry Council the members of the S.P.B.A. have accorded it very liberal support, and have been remarkably ready in their response to the various appeals that have been made. This is no doubt partly due to their loyalty to the Society, but may also be taken to mean that they appreciate the efforts that have been made in their interests by the Council to improve the condition of the industry.

There is no doubt that a great deal of very useful work has been done in many directions, as shown by the reports that have been issued to the Press from time to time, but the activities of the Council are hampered for want of a regular income. The officials are in perpetual anxiety as to whether sufficient funds will be forthcoming to enable them to carry on the work, and we have frequently been told how thankful they are for the generous help given by the members of the S.P.B.A.

What is wanted to alleviate this anxiety is a much larger list of patrons subscribing a minimum of £2 2s. per annum. If that list were raised to 400 or 500 patrons, and an income of £1,000 a year were assured, the activities of the Council could be extended.

Such an increase of patrons should surely be possible when the extent of the poultry industry is considered, and as is indicated by the fact that the S.P.B.A. has a present membership of over 6,000 and the numbers are steadily increasing.

It seems to me that the best way in which we can show our appreciation of Mr. Newman's proud position and help him in his work as President of the National Poultry Council is by sending him a cheque for £2 2s., and asking him to enroll us as patrons on his special list.

It will be a great achievement for him if during his year of office he is able to put the finances of the Council on a really firm basis.

I am sending him my cheque, and hope to head the list of his new patrons.

J. GERARD KITSON, President S.P.B.A.

Modern Poultry Feeding.

By TOM NEWMAN.

AN UNBALANCED RATION.

A correspondent writes:—

"With reference to your article on the 'Food and the Feeder,' it might be of assistance to many people if you would publish an article on Balanced Rations, for so many of your readers, I am sure, have no idea how to arrange a balanced feed. I can quote you one instance. A certain egg farmer is now feeding growing pullets from 3½ to 5 months old on maize only as a grain feed. Dry mash hoppers open all day, the contents of which have a ratio of 1 to 1½. Wet mash fed once daily, the ratio of which is 1 to 1.8. The feeding is sure not to be blamed, but, as is so often the case, those working on the farm."

My correspondent should remember that a ration is not necessarily a balanced one because it has a correct albuminoid ratio, and it is impossible to express an opinion on the one given above on the facts given. It would be necessary to know the composition of the mash. Certainly it appears to be very forcing, especially for young growing stock, and apparently the object in feeding maize as the sole grain is to produce a balanced ration.

A balanced ration is one in which the protein, fats, carbohydrates, and mineral content are present in their proper proportions. It does not necessarily follow that we shall get these by working on a ratio of 1 to 4, or 5. Here are three formulas which were sent me this week. The writer has worked out the ratio himself, and you must take his figures, as I would sooner write a hundred letters than work out one of these ratios. He suggests that if he feeds equal parts wheat and maize as the grain feed, he will have a balanced ration in each case:—

(1).—2lbs. Malt Sprouts, 4lbs. Sharps, 1lb. Meat Meal, 2lbs. Bran. Ratio: 1—3½.

(2).—1lb. Maize Meal, 3lbs. Sharps, 1lb. Meat Meal. Ratio: 1—3½.

(3).—3lbs. Boiled Rice, 2lbs. Sharps, 1lb. Meat Meal. Ratio: 1—4.

In the first the bulk is very excessive; would be likely to cause digestive trouble, and even if it did not the appetite would be satiated without the bird deriving sufficient nourishment from it, and it is deficient in fats. Further, the mineral content is low, and although malt sprouts are fairly well off for lime salts, it is still deficient. It might be considerably improved by replacing the meat meal with meat and bone meal, or fish meal, and replacing one part of the malt sprouts and one of the bran with maize meal. This would increase the mineral content, reduce the bulk, and add the needed fats.

In No. 2 there is a great deficiency in the mineral content, particularly in the important lime salts. If fed with the proposed grain ration, it is likely to be very fattening. No. 3 is even worse, for rice has a very low mineral content, and it is very deficient in protein, which is also of a poor quality. Rice is almost pure starch, and fed in such a proportion it would be likely to cause constipation and anaemia.

Although we know what a balanced ration is, it is very difficult to write a formula which will give the constituents in their proper proportions. Where birds have free range they generally balance their ration themselves. The following is the best formula I can give as a balanced ration, wet or dry mash:—

1lb. of Bran.
1lb. of Alfalfa Meal.
4lbs. of Fine Middlings.
1lb. of Maize Meal or Barley Meal.
1lb. Sussex Ground Oats or Biscuit Meal.
½lb. of Dried Yeast.
½lb. of Fish Meal or Meat and Bone Meal.

Grain Feed: Two parts Kibbled Maize, one Small Red Wheat, one Oats.

That formula was written some years ago, and it has been appropriated by numbers of other writers. It will give good results, either as a layers' or breeders' mash. It is balanced as far as our present knowledge enables us to balance a ration, because the protein content is good and of good quality, the bulk is sufficient, the fat and carbohydrate content is high enough, and the mineral content is high as regards the important lime salts, well off for iron and phosphoric acid, the A. and B. vitamins are also provided, the latter being sufficient under all conditions.

A reader reminds me that Capt. Rice in his paper on "Prevention of Disease," at the Harper-Adams' Conference, referred to the litter, and spoke of it as a serious menace, and asks what we are to do without litter. In answer to this, I think Capt. Rice qualified his condemnation of the litter, by observing that it was probable that it was preferable to run the risk rather than the birds should be without exercise. It is impossible to deny that feeding grain in the litter may be a serious means of spreading disease, but there seems to be no alternative. The only thing to do is to keep the litter as dry and clean as possible—possibly a little lime would help matters. It is perfectly certain that damp litter is a most serious danger. One thing one so often finds with careless or incompetent feeders, that is the wasteful feeding of grain. There is more than the birds need; it gets buried in the litter, becomes mouldy, and, of course, a source of disease. I have often been in houses, scraped the litter on one side with my foot, and found a lot of corn wasted there, which had become mouldy. It is a very bad practise, too, to put clean dry litter on the top of that which is damp.

IRISH POULTRY-KEEPERS' ASSOCIATION.

At a Special Council Meeting of the above Association, held at the Corn Exchange, Burgh Quay, Dublin, on the 5th inst., many important decisions were arrived at, including the appointment of an organiser in the person of Mr. M. J. Connaughton, Garden House, Enniscorthy, to cover all Ireland with a view to forming County Committees.

The aims of the Association are:—To organise the Poultry-keepers of Ireland, to improve the breeds of poultry kept, to secure cheaper foodstuffs for its members, and a better market for their produce.

Mr. T. V. Browne has also been engaged as Secretary, with an office at the above address.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

C. M. C. (Scunthorpe). The sample of fish meal appears to be quite a fair one, but I think you should get some guarantee as to the salt content. It is surprisingly cheap at the price. There may be a little excess of oil. The sample of meat and bone meal at 10s. evidently came from a knackery, and I should not be inclined to use it. That at 18s. is the better.

"Ivy Cottage" (Cradley). The sample of maize meal is a very good one, indeed, but as you have marked it 1s. 2d. per lb., I cannot think what you mean. The meat meal is of fair average quality, and value for money. The S.G.O. I think dear at 18s. cwt. They appear to contain a percentage of barley. The bran is of fair average quality and value for the money. The sharps are good.

C. J. L. (Rossetenville). On the question of weak germs which are attributed to the male bird. This is not always the case. Often a hen is at fault. Of course, a germ is often not properly nourished owing to a lack of the elements essential for the development of a healthy embryo. That we have realised for years, and I have often called attention to it in my writings. More particularly is this the case with a very highly productive hen.

R. N. (Southampton). I hope to publish designs of dry mash hoppers, which will render it impossible for the chicks to foul the mash, in an early issue. I have used these myself for some years. (2) With regard to the value of the blood agglutination, I must leave you to draw your own inference from the statement made at Harper-Adams. (3) The sample of clover meal you are using is a very inferior one, and the percentage too high, which would probably explain your growing stock being in such poor condition. It would be better to get some good alfalfa meal and use half the quantity in place of the clover, and replace the other half with middlings.

S. L. (Devonport). You ask, in effect, whether the production of a pullet during October, November, and December is any indication of what she is likely to do in the full year. Yes, that is so. Any pullet which lays over 20 eggs in October, can, under normal conditions, be expected to put up a record of between 200 and 240. If, however, she were to drop to about 12 eggs for the month I should not expect her record to exceed 150. Of course, you must regard these figures as only being approximate. What they indicate is that a bird which in any one month, either October or November, or December, puts up a good record, will give a good yearly record. Of course, there will always be individual exceptions to this. A pullets may lack staying power, and in calculating these records you should always have the bird itself in mind.

F. C. (Wycombe). On a piece of ground the size you mention you could keep 20 birds permanently, but if you rest half of it for six months, and use it economically during the winter months, that is to say, keeping the birds confined in very bad weather, you might manage up to 30 or 35. Now if I were you I would keep the birds intensively during the winter months, as if they are running out on such a small piece of ground from the beginning of November to the end of February it does more harm than good. There is nothing in the grass, there is no insect life, and all they get is wet feet, and are very often cut up by the cold winds, which is all against heavy egg production.

E. V. (Grimsby). With reference to the salmon-coloured feathers on the breast of your White Leghorns. You say that the progeny were all pure white, and ask if it is possible that it is due to an outcross some generations back. No, I do not think this is the case. You must remember that the visible characters of the parents are not their total assets. There is no such thing as a "pure white" bird. All white birds carry red pigment, and sometimes in a certain mating this will appear in the plumage of the progeny. It is not a sign of impurity. Merely an excess of red pigment carried by one or other, or, perhaps, both of the parents.

E. N. N. (Millhouses). I think you will be making a very great mistake if you give the pullets one handful of wheat each in the morning first thing. A better plan would be to give them a small scratch feed just to keep them active, say one handful between every five birds, then open the dry mash hopper, and leave it open for the remainder of the day. About half-an-hour before they go to perch, give them a handful of kibbled maize each, also in the scratching litter. If you wish to give another feed of wet mash they should have that about 8 o'clock. Whether your mash will be suitable or not during the winter months will depend to a great extent upon the nature of the house scraps. These vary very considerably. If they consist mainly of vegetable peelings, such as cabbage, potato peelings and the like, it would be advisable to increase the sharps by another two parts, and add one part maize meal, or barley meal. For a dry mash formula you might take the one which is so often advised in "Eggs," namely: 1 bran, 1 alfalfa meal, 4 middlings, 1 ground oats, 1 maize meal, and 1 meat and bone meal or fish meal. It would be advisable at this season to put the birds on to their laying mash at once.

"Grateful" (Devon). For your Leghorns and Wyandottes the following dry mash would be the best:—2 lbs. bran, 4 middlings, 1 each S.G.O. and maize meal, and 1 meat and bone meal. I should give them one handful of kibbled maize for every three birds in the scratching litter first thing in the morning, open the dry mash hoppers half an hour later, and give them a handful of kibbled maize each as the last feed, say half an hour before they go to perch. The same feeding would apply to the Columbian Wyandottes, and, to some extent, to the Light Sussex, but with the latter breed, as they are confined, it would be wiser to give as the grain feed:—One part oats, one wheat and two kibbled maize. See that they have plenty of exercise, or they will become overfat. I am very pleased to have your kind appreciation of "Eggs."

W. A. P. (New Thundersley). Cockle shell is not so good as oyster shell. It contains less carbonate of lime. Fine ashes and dried earth with the addition of a little lime is the best mixture for a dust bath. No, broodiness is not governed in any way by feeding.

E. C. P. (Northumberland). Please refer to the answer re Feeding your Black Leghorn Pullets, given to "Grateful" above, as a mash for her Leghorns and Wyandottes. Your house, 9 x 6, with a scratching run 10 x 6, would accommodate twenty pullets—that is, if you keep the run perfectly dry.

POST-MORTEMS.

A. G. T. The post-mortem examination of the two White Leghorn cockerels showed the cause to be anaemia and malnutrition, due to immense numbers of minute tape worms, which by burrowing into the mucous membrane of the intestines had caused much damage both to structure and function. To destroy and expel the worms give each bird a pill composed of five grains each of powdered areca nut and kamala, repeat in a week, and then give them one dram of sulphate of iron to the pound of mash, to act as a tonic and correct the anaemia.

D. B. We have made a careful examination of the R.I.R. pullet, and find that she is the subject of rickets. One of the feet was slightly swollen, and showed a mark of what looked like a puncture; we opened the foot and found a small cyst, which we removed. We should like to keep this bird under observation for a few days in order to see if any of the former symptoms return, as there was no sign of any internal trouble, the vent and surroundings being clear of any discharge, etc. Will you kindly let us know whether you wish the bird return, or destroyed and a post-mortem examination made?

E. B. M. Roup is the trouble with your turkey, and the swellings under the eyes are caused by the catarrhal discharge being forced up through the slit in the roof of the mouth into the cavities under the eyes. The only effectual treatment is to open up these swellings as soon as noticed and before the contents have become solid or semi-solid. Open up freely and remove the matter, then dip their heads, with the mouth open, into a one per cent. solution of permanganate of potash. The dipping should be done daily and the wounds kept open or the matter will collect again. The sick birds should be isolated and the premises thoroughly disinfected, as roup is an infectious disease.

J. H. This bird was the victim of her virtues, producing such vast quantities of yolks that they intruded into the chest and pressed against the lung. Apoplexy followed. She was very fat, and this added to the pressure. Could you not lower the arterial tension by a 24-hour fast and a few daily doses of saline, such as ten to fifteen grains of sulphate of sodium? Hens so treated may miss one egg-laying day, but that is better than dying of apoplexy.

L. P. S. The cause in the case of the W. Leghon pullet was suffocation, due to diphtheritic deposits in the larynx, which was completely blocked. There is little doubt that the "colds" you mention are roup in the catarrhal stage, and it was fortunate that you did isolate the ones affected. Dipping the heads, with mouth held open, for twenty or thirty seconds, in a one per cent. solution of potassium permanganate is the most effectual method of treatment.

H. G. P. This bird was the victim of fowl cholera. It is important that every means of disinfection and isolation of suspects should be carried out, as it sometimes spreads with deadly rapidity, and in other flocks only a few are smitten, and the nature of the disease not suspected. In this fowl the lesions were gross and unmistakeable. We advise giving fifteen grains of hyposulphite of sodium dissolved in water and given with the morning mash over a period of a fortnight. There were a very large number of round worms (Heterakins papillosa), and these are a detriment to health and growth. Hoping you will succeed in arresting the plague.

Goat-keeping & Poultry.

By Mrs. EPPS.

ARTICLE VII.—GENERAL MANAGEMENT.

The aim of the goat-keeper should be to get a supply of milk for as many months in the year as possible. A goat will remain in milk for as long as the average cow, i.e., ten months out of twelve, and a good number will milk right up to the time of kidding. The amount of milk given in winter is usually small, but by careful management can be improved. With most goat-keepers the turn of the year finds the milk supply nearly at an end, so every effort should be made to get one goat at any rate in kid in January or before. Unfortunately goats come into season at very fixed times, beginning in September and ending in April, and there seems no way of inducing them to mate other than during this time. Knowledge on the subject of the internal secretions that influence the time of coming into season is at present non-existent, and would appear to offer a wide and profitable field of research for scientific workers.

A fair average yield from a goat is 150 gallons a year, and I think the ideal number of goats for the usual sized household of about five people is three; this number will for many months give enough milk, not only for household needs, but will supply plenty for chicken rearing. With three goats matings can usually be so arranged that no time of the year finds the milk supply absolutely dried up, assuming that goats of long lactation are kept. And this is where records are of such great value. Instead of selecting the goat that with much impressiveness gives a gallon a day for a short period, I would advise the purchase of a goat that gives a steady five pints a day over a long period; it is of greater importance to have milk in moderation all the year than to have a great flood during the spring and summer and none in the winter, though when rearing large numbers of chicks the spring glut of milk need not be wasted. A goat-keeper lamented to me the other day that she "threw away two gallons of milk every day," as it could not be used up in the house, but further enquiry elicited the fact that throwing away only meant giving it to the pigs, and she seemed astonished when I said that nothing was wasted in her case.

I would like to warn beginners to be very careful when contemplating the purchase of a goat said by its owner to be due to kid in September or other highly desirable moment. It is most difficult to get kiddings from September until December, and those lucky enough to achieve this are not likely to part with such an animal under a high figure. If a goat is purchased under these circumstances a written guarantee from the seller should be i sisted upon, and a clear undertaking entered int to refund the money in case no kidding take place. Even an experienced goat breeder can b sadly deceived by judging on appearances, fo many goats have the kind of figure that leads on to suppose them to be in kid when the contrary i the case.

During a great part of the year there is no nece sity to stable goats—in fact, they are much bette in the open air, and only need a shelter from rai and cold winds. An open shed serves this purpo quite well. The chief point of superiority of goat over a cow is her freedom from tuberculo disease, and to stable her in the hot, fetid atm sphere that one so frequently encounters in cow sheds is the worst possible treatment. It is in possible to have too much sunshine and fresh ai even though the stuffy atmosphere of a badl ventilated stable may for a time induce a goat t give more milk when weather is wintry.

Poultry-keepers are not as a rule short of meado space, and when a few goats are kept means tethering them out are at hand. Goats like t browse in hedgerows, and do good service destroying weeds, etc., that usually find refug here and in ditches.

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MIDLAND AGRICULTURAL AND DAIRY COLLEGE, SUTTON BONINGTON, LOUGHBOROUGH.

Programme of Poultry Conference, Tuesday, 23rd Septembe 1924. Chairman: Percy A. Francis, Esq., Poultry Commissione Ministry of Agriculture and Fisheries:—

MORNING SESSION.—11.45: Chairman's Opening Remark 12-1.15: "Some Problems in Poultry Breeding," by F. A. Crewe, M.D., D.Sc., Ph.D., F.R.S.S., Director, Animal Breedi Research Department, University, Edinburgh. Discussion open by Geo. Palmer, Esq., Hinckley. 1.30-2.30: Luncheon a Inspection of College Buildings.

AFTERNOON SESSION.—2.30-3.30: "Poultry Diseases," Captain N. Bisset, Veterinary Adviser, The University, Cardi 3.30-4.30: "Prevention of Poultry Diseases," by Captain J. Rice, B.Sc., M.R.C.V.S., Head of the Division of Anim Diseases, Stormont, Belfast. 4.30-5: Tea and inspection of t new Poultry Department.

NOTES.—(1) Visitors who so desire may be accommodated either Monday or Tuesday night in the College Hostel at reaso able charges. (2) Luncheon will be provided at the College f a limited number (not exceeding 100), at a charge of 2s. eac and tea at a charge of 9d. each. Tickets may be obtained at t Office on the morning of the Conference. (3) All farmers, pou try-keeper and others interested are cordially invited to atten (4) The College is within 10 minutes' walk of Kegworth Statio London, Midland, and Scottish Railway. (5) Convenient trai arrive from the North: 10.33, 11.15 and 1 o'clock. Convenie trains arrive from the South: 11.41 and 1.16 p.m. Convenie trains depart for the North: 5.13, 5.20, and 6.13 p.m. Convenie trains depart for the South: 5.0 and 6.4 p.m. (August Tim Table).

THOMAS MILBURN, Principal.

Dear Sir,—I have only been a member of the S.P.B.A. sinc January, but I have gained more knowledge from "Eggs" an the Year Book in that time than I have ever got from othe journals in years.

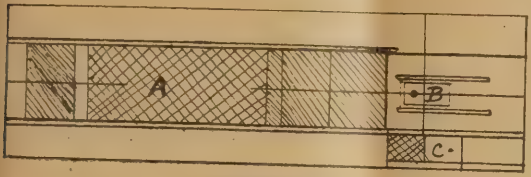
Yours faithfully,
(Signed) H. BRAMLEY.

Hurricane Lantern Brooders.

By **P. L. JOHNSON.**

The following particulars will describe a home-ade brooder, heated by a hurricane lantern, which have used here most successfully for several ears. It is very easy and inexpensive to make, d the lamp only need be purchased.

It can, of course, be made any size, but the easurements I give are for one for seventy-five icks, and the lantern has a one-inch burner. he total length, inside measurement, is 84 in. by in., this is divided into two compartments. The ater part being 30 in. square, as this size just kes a 27 in. square of corrugated iron roofing er the lamp to reflect the heat.



SKETCH 1.

Sketch 1 gives a rough idea of the front outside, e height being 24 in. in front and back 18 in.

A. is the exercising part ,and has 1 in. galvanised re netting and panes of glass, sliding in runners, close in bad weather.

B. is a sliding door covering a piece of glass out 3 in. square, and is for inspecting chicks en in the hot compartment.

C. is a sliding door, half wood and half per-rated zinc, which regulates the supply of air to np and chicks.

Sketch 2 is the front part of brooder with the nt removed to show the construction.

D. is a sheet of corrugated iron roofing 27 in. uare.

E. Wire guard protecting lantern and chicks m hopping over.

F. Circular tin guard, 5 in. high, to prevent litter ng scratched on to lamp.

G. is floor of heater chamber 6 in. above ground, d in the centre is cut a hole, which takes the ard F., and the lantern is dropped into this.

H. Floor of exercising compartment, 4 in. above und level.

. Hurricane lantern, 1 in. wick.

. 1 in. batten running all round hot compart-nt, 9 in. above floor level.

K. 2 battens placed across corrugated sheet to p it rigid, these are 30 in. long and thus keeps in proper position.

. Cross bar handle, 30 in. long, across the K. tens at right angle.

M. Partition between two compartments, which ends to 1 in. of roof.

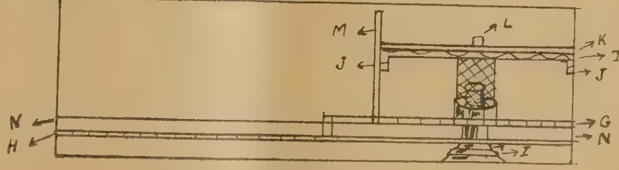
N. A 2 in. by 1 in. batten running the whole length of brooder to which floor is fastened, the heater compartment, and 8 in. outside the floor is fixed in the top side. The water troughs are placed on the outside piece, and this keeps them clean, and the floor of exercising part is nailed on bottom of the batten, this 2 inches takes the sand and chaff, or whatever is used for litter.

There is a door in M. connecting the two compartments, and another at the end to let the chicks out on mother earth, and at this end are four 1½ in. holes for ventilation just under the eaves of the roof. The roof can be made in one piece to slide, but, as I think this rather frightens the chicks, I prefer to make it in two sections to open from the front, running across the end of the exercising compartment, just clear of door—i.e., about 6 in. above ground is a shelf 10 in. wide, this is for dry mash hoppers ; this is used as soon as chicks are old enough to hop up.

When chicks are first put in I use litter 3 in. deep in warm compartment, reducing as they grow, and when they are old enough to do without the lantern the false roof can be removed and they are in a splendidly ventilated space but with no draught.

As the oil container is always cool the lantern gives no trouble, the overheating of the container being a frequent source of trouble in most brooders, but always remember that all lamps will draw up soon after they have been lighted.

Of course, a smaller size brooder can be made, and a ⅝ in. wick lantern will give enough heat. The heated compartment gets dry, but as it stands directly over the soil there is not the excessive dryness one gets with an anthracite stove, and being partly dark the chicks do not scratch and kick up the suffocating dust that they do in stove brooder houses.



SKETCH 2.

FIFTH MIDLAND LAYING TEST.

ELEVENTH MONTH ENDING SEPTEMBER 7th, 1924.

The weather during this month, although wet, has been cool, and this has aided the birds to maintain a fairly steady daily production, averaging 50 per cent.

An increased consumption of both dry and wet mash, occasioned by the general moult, has been noted amongst all breeds.

White Wyandotte No. 436 still retains the lead for individual scoring, having laid 291 eggs in 308 days, only three of these being second grade.

There has been one death, No. 203, and the post-mortem report will be sent to the owners.

Three Leading Pens in each Section.

W. Leghorns.—1, Coun. Thompson, 752 eggs; 2, C. H. Hudson, 690 eggs; 3, H. Boxall, 694 eggs.

W. Wyandottes.—1, H. W. Gee, 1,018 eggs; 2, Fowler Bros., 958 eggs; 3, S. and T. Greenall, 729 eggs.

Rhode Island Reds.—1, Major Kingscote, 687 eggs; 2, Easton P.F., 712 eggs; 3, Miss M. Grehan, 669 eggs.

Light Sussex.—1, Fred Gardner, 656 eggs; 2, F B. Welch, 611 eggs; 3, Mr. and Mrs. Jacobs, 575 eggs.

A.O.V. Light Breeds.—1, M. H. Brady (Ancona), 701 eggs; 2, G. C. Woodbridge (Ancona), 566 eggs; 3, Blaksley and Blyth (Black Leghorns), 574 eggs.

A.O.V. Heavy Breed.—1, H. Thomas (Buff Orps.), 579 eggs; 2, W. Hamnett (Buff Rocks), 539 eggs; 3, Major Shewell (Barnevelders), 542 eggs.

Turkeys.

CONDITIONS UNDER WHICH THEY THRIVE.

By **BERNARD REDDAWAY, M.S.P.B.A.**

When taking up any fresh breed or variety of poultry, it is advisable to study it from the very beginning, as a knowledge of its habits, and of its natural environment is most useful in showing what treatment it should receive when kept in a domesticated state.

The turkey is a native of the North American Continent, and it still flourishes there, in the wild state, in large numbers. It is not likely that it was ever tamed by the original inhabitants of the country, so it has still a lot of its wild instincts left, and it is not possible to be really successful with it unless the strongest of these instincts, that of roving, is humoured.

When it was first introduced into this country in 1524, probably through Spain, it was erroneously believed to have come originally from Turkey, and that is how it obtained its name. The French "dinde" or "dindon," obviously a derivation from "d'Inde," meaning "from India," or in this case "from the Indies," gives a better idea of its origin.

It is no use trying to rear turkeys in close confinement, as they love to roam at will across the fields, and if closely shut up they soon pine away. Anyone who has an acre or more of land for them, should have no difficulty in rearing the young birds; the land must be well drained, on a slope for preference, and the more uneven the surface is the better, as the turkeys love to explore every inch of the ground, and the uneven land adds great enjoyment to their hunts, as they never know what is round the next corner. Turkeys, like all other kinds of poultry, do much better when there are trees about to lend them shade and shelter.

If the wild turkey hen can raise her own chicken in the American forests, with other preying creatures about who are ready to take the chicks day and night, and who must have large numbers of them; it seems strange that we, with so many advantages, should find their rearing so difficult.

There is quite a number of breeds in existence; but the American bronze, the Cambridge bronze, and the White variety, are the most popular. The most widely kept, and probably the best, breed is the American bronze. This is a very large bird, the average weight of mature males being about 27lbs., and of the hens about 15lbs. The breed is hardy and vigorous, and quick in growth, and altogether very excellent as a profitable market variety. The White is considerably smaller, although very similar in type. It is a handsome bird, and its flesh is of high quality; it is well worthy of a place on the farm, and might be more widely kept.

If a good cross is desired, it is difficult to beat that between the White and the American bronze. If birds of stamina and good type are used on both sides, this cross should be very strong and quick-growing, and should carry a large quantity of excellent flesh. There is, however, little advantage to be gained from crossing, unless the pure-bred stock is extremely weak This should not be the case if in-breeding is avoided and if no bird with liver disease is bred from.

(To be Continued.)

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIE

Minutes of the Quarterly Meeting, held in the Master Builde Rooms, Mount Street, Preston, on Saturday, August 30th, 19 Mr. W. Hamnett presiding.

Affiliations.—An application for affiliation had been receiv from Tyldesley Society (40 members). On the proposition of M W. Martindale, seconded by Mr. J. Edmondson, they were accept as members.

Correspondence.—The Secretary read a letter from Mosel and District Poultry Association, asking for particulars affiliation, which he said had been sent.

A letter was read from a member of the Newton and Ear town Society re Tax on land. The Secretary was instructed write him, asking him to give full particulars (through society) to the Federation.

A letter of thanks was read from Mr. A. H. Browns Treasurer of the N.P.C., for a subscription of £2 2s. sent by Blackburn Small Holdings Society to the N.P.C. funds throu the Federation.

Mr. J. Graham submitted a scheme for the marking of bir This matter was referred to the Educational Committee for c sideration, on the proposition of Mr. J. Edmondson and secon by Mr T. Hudson.

National Poultry Parliament Meeting, held at Salisbur Mr. Hamnett gave a report of the meeting, which was accep on the proposition of Mr. J. Edmondson, and seconded by Bridge.

Accounts.—The accounts submitted for printing, etc., w passed for payment on the proposition of Mr. A. Grime seconded by Mr. J. W. Pearson.

Sub-Committees' Report.—Finance.—Mr. J. P. Willacy repo on behalf of this Committee, and stated that all accounts been examined. He also stated the bank balance stood £60 3s.

Educational and Propaganda.—Mr. W. Grime, chairman of Committee, reported on their behalf. He stated that his C mittee had not yet considered the request to award a Cup the L. and C. Agricultural Society, but would report at a l date. He also suggested sending a letter to the Poultry Pres the Federation Standard, which was agreed to, on the pro tion of Mr. H. Hayes and seconded by Mr. J. E. Morris.

Westhoughtons Society's notice of motion, re awardin Shield for a team of birds at the Federation Show, was refe to the Show Committee for consideration.

Laying Test.—Mr. J. Edmondson, chairman of this Commi reported that all the necessary arrangements had now been n for this year's test to be held at the Lancashire County Co Farm at Hutton, under the supervision of Mr. C. H. Dobbin, County Poultry Instructor. Entry forms are now ready, may be had from the Federation Secretary, Mr. E. Collie whom all correspondence respecting the test must be sent. the proposition of Mr. W. Martindale, seconded by Mr. C. Birt a vote of thanks was accorded Mr. Edmondson for the wor had done to get the test fixed up.

Show.—Mr. Hamnett, chairman of this Committee, rep on their behalf, and outlined what had been done, the being fixed for November 9th, at Blackpool. His Committee w like to know the delegates' opinion of making the Feder Show an open one. After a lengthy discussion Mr. S. Ma moved that it be a recommendation to the Show Committe confine the Show to Society members and hon. members as viously, and this was seconded by Mr. J. Edmondson. Mr. Ma dale moved an amendment, that this meeting of dele decide to confine it to Societies members and hon. members not leave it to the Show Committee to decide. This was seco by Mr. J. E. Morris. The voting decided that it be a mem show only, as previously.

Mr. W. Martindale raised a question on the report of the Council meeting, which referred to Mr. Hamnett asking power to allocate the judges to their respective classes, was granted. Mr. Martindale stated his society did not it in order to allow an individual to allocate the judges. Secretary replied that the request made by Mr. Hamnett on behalf of the Show Committee, of which Mr. Hamne chairman, and not on his own behalf.

Mr. C. Birtwell moved the Show Committee put on a N Class, and this was seconded by Mr. Grove. Mr. J. Edmo moved an amendment that they do not have a Novice Class this was seconded by Mr. Glover. On the voting being take amendment was carried.

Mr. C. Birtwell suggested a Dressed Poultry Class be a and this was seconded by Mr. J. Edmondson, and carried.

Mr. Hamnett said he had a scheme which he thought make the Show a success from the point of getting entrie the Show. All the affiliated societies' secretaries would b sponsible for getting entries from their members and send to the Show Secretary. Each society would have an index so that specials awarded by societies could easily be judge

The pooling of delegates' railway fares came out at per head. This closed the business, and the meeting termi

E. COLLIER, Organising Secreta

Utility Duck Club Notes.

By **HUGH B. CARRINGTON.**

Autumn is already upon us, and with it thoughts of he coming shows. It is, therefore, fitting to begin the eptember notes by announcing that the Utility Duck 'lub, for the first time in its history, is having a tand at the forthcoming Dairy Show from October 1st to 24th. In case there is anyone who does not now where this is held, it will be at the Agricultural Iall, Islington. The U.D.C. Stand is No. 219 in the ast Gallery.

The Annual General Meeting will be in the Club oom at 2.45 p.m. on Wednesday, October 22nd. We re indebted to the British Dairy Farmers' Association r the loan of the room.

It is hoped that as many members as possible will isit the Club Stand, where it is intended to show ome interesting exhibits. Needless to add, every iember who can possibly spare the time will be most elcome at the Annual General Meeting. It is the est opportunity of the year for discussing the policy f the club and for initiating action which will be help-ul to members and to the industry. Incidentally it is fine chance for members to throw stones at the Council, if they want to—escape is difficult and the range short.

Those who are already members will shortly receive otices of the above, but there may be others whose yes this announcement will catch, and who will, I ope, immediately become members, and take a share the Club's doings. It should be remembered that ie Club year begins on October 1st.

The season is now upon us when the March atched ducklings will all be coming on to lay, some, o doubt, are already doing so, and then in succession, ie April, May and even later hatched birds. Here I ould like to counsel patience—it is not worth while hurry the birds—in fact, it is much better not to do ; for those which come on to lay from middle of September onwards are much more likely to lay all through ie winter than those which start earlier. The latter rds are liable to go into a winter moult, and be off ie lay for several of the best weeks in the year, from egg-selling point of view. Therefore, I suggest that is best not to force the young birds in any way; do ot feed an excessive quantity of fish meal, as a eneral rule about 10 per cent. will be ample till the eather turns cold and raw. It will then be time iough to think about providing a more stimulating et.

There is another point which it is by no means too rly to mention with regard to feeding. Ducks are ery fond of green food, and by some means or other is should be obtained for them throughout the inter months. It is very good for the ducks, and has ie additional advantage that it supplies bulky food, d should, therefore, help to reduce the food bill.

There are many things which need to be studied by ick-keepers at this time of the year, such as housing, trap-nesting (already mentioned in a previous month's notes), marketing duck eggs, feeding for eggs during the winter months, and so on.

Literature on these subjects is published by the U.D.C., and may be had on application to me. The leaflets and articles are mostly written by people who who have had years of experience of Duck-Keeping, and, to judge by the opinions of those who have applied for them, are well worth reading.

A reminder will be put in the October Notes with regard to the Dairy Show, but I would like to ask members, and many others who are interested, to make a note of it *now*, and come to the Stand on one of the four days. Members of the Council and other helpers will be in constant attendance, and if members knew how very encouraging it is to those who have organised these things to have a constant stream of visitors, I am sure they will turn up in large numbers.

THE NATIONAL UTILITY POULTRY SOCIETY AND THE UTILITY DUCK CLUB NATIONAL EGG-LAYING TEST, 1923-24.

REPORT FOR THE TENTH MONTH—10th JULY to 6th AUGUST, 1924.

The seasonal shrinkage in production made further progress during the tenth month—the average per bird falling from 15.88 eggs—the previous month's record—to 14.79. The daily collections dropped sharply towards the end of the month, the lowest being 936 eggs on the 21st day, as against 1,149 on the 11th day.

Broodiness, although showing a slight reduction on last month's figures of 592, was again prevalent, as many as 555 requiring treatment. The effect of broodiness at this time of the year is serious, as it more often than not results in the bird falling into moult, and remaining unproductive during the remainder of the test.

Up to the end of the month 134 birds had reached the 200-egg mark.

The average per bird to date is now 152.35 eggs, that of the light breeds being 155.79, and the heavy breeds 148.27; while the birds in the Championship Section have put up a record of 160.15 in the ten months.

A most interesting stage has now been reached in the Test, and with so little between the leading pens, in nearly all sections, a very exciting finish may be expected. The general health of the flock is excellent.

DUCK TEST.

As the result of the general moult, egg production during the month reached a low point, but towards the close quite a number of ducks recommenced to lay. This rapid resumption of laying after the completion of the moult is one of the chief characteristics and economic values of the egg laying breeds of ducks.

The leading pen in each section remains the same as last month.

The ducks in the Small Breeders' Section again did well, and the average of the whole flock is now 234.57 eggs per duck for the 44 weeks. The health of the ducks continues to be excellent.

EGG PRODUCTION OF LEADING PENS.

Figures are for Eggs and Points respectively.

Section 1.—Championship (Ten Pullets).—1, Miss M. Fowler, 1814, 1813; 2, Warwick Rogers, 1794, 1785; 3, W. M. Golden, 1652, 1649.

Section 2.—White Leghorns (Five Pullets).—1, F. R. Welch, 1004, 1003; 2, Capt. V. C. M. Gonne, 971, 968; 3, Mrs. E. M. L. Knight, 1021. 966.

Section 3.—Black Leghorns (Five Pullets).—1, I. Margerison, 876, 875; 2, Frank Snowden, 936, 874; 3, P. K. Berry, 870, 870.

Section 4.—Non-Sittings Breeds (Five Pullets).—1, R. Charles Hall, 858, 857; 2, J. H. Thompson, 851, 849; 3. C. E. Legg, 815, 815.

Sub-Section 4a.—Exchequer Leghorns.—1, Sam. Outhwaite. 713, 709; 2, Vice-Admiral C. Cayley, 653, 653; 3, W. R. Routh, 573, 572.

Section 5.—White Wyandottes (Five Pullets).—1, Richard Rodwell, 926, 925; 2, Harold Seddon, 913, 912; 3, Ralph Sewell, 911, 910.

Section 6.—Rhode I. Reds (Five Pullets).—1, W. and T. Salt, 954, 953; 2, G. W. Reeves, 861, 861; 3, A. H. Capper, 847, 846.

Section 7.—Sussex (Five Pullets).—1, F. Rossall-Sandford, 838, 838; 2, W. Bradbury, 821, 820; 3, M. W. Slade, 777, 775.

Section 8.—Sitting Breeds (Five Pullets).—1, F. R. Welch, 863, 863; 2, Major J. A. Morrison, D.S.O., 858, 858; 3, Mrs. M. Crookes, 844, 843.

Sub-Section 8a.—Australorps.—1, H. R. Parsons, 883, 834; 2, Hon. Elizabeth Chaloner, 614, 612; 3, Hon. Mrs. Adams, 766, 589.

Sub-Section 8b.—Buff Rocks.—1, F. R. Welch, 863, 863; 2, Mrs. M. Crooks, 844, 843; 3, A. M. Kemp-Gee, 839, 838.

Sub-Section 8c.—Orpingtons.—1, Major J. A. Morrison, D.S.O., 858, 858; 2, P. J. Gough, 738, 738; 3, Mrs. K. Simpson, 677, 675.

Correspondence.

THE LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

"EXHIBITION UTILITY STANDARD."

It is very satisfactory to know that the members of the above Federation have not been drawn into the Poultry Press correspondence on this question.

The Federation may congratulate itself that the criticisms are not such that disturb one's sleep, yet a little fuel would have given the various critics an opening.

The Education and Propaganda Committee (sanctioned now by the last Quarterly Meeting) think it advisable for the critics to know that, when considering the Standard, the basis was taken from the Poultry Club Standards and the Standard then, and the writer conveys his very sincere thanks to Dr. Crowther and Mr. Wm. Rice for their kindness in supplying him with the necessary information.

The Lancashire Federation never have taken the short-sighted view or policy of adopting a Standard for the North, and, therefore, when the "Council" had passed for adoption the work of the Propaganda and Education Committee, the chairman wrote to all the specialist clubs for their respective standards and asked their co-operation with the object that the "Exhibition Utility Standard" will be applicable to the whole of the poultry industry (utility) of this country. Fifteen specialist clubs have kindly replied with the copies of the standards, and it is hoped that the remainder will see their way to co-operate.

It is thought that no good purpose will be served in arranging for a combined representation of the members of the different breeds and competent bodies until further details are collected and arranged into something of a concrete nature, which will take some considerable time; in the meantime those who are desirous of unanimity are asked to co-operate, not criticise.

Yours faithfully,
W. GROVE,
Chairman of the Propaganda and Education Committee.

P.S.—Any specialist club not having received an invitation to forward copies of Standard kindly oblige to 18, Marshall Road, Levenshulme, Manchester. Eighty-four clubs have had circulars sent.

THE LAYING LIFE OF THE HEN.

Dear Mr. Newman,—I was very interested in the article on the "Laying Life of the Hen," by Bernard Reddaway, in "Eggs," of 27th August. I think this is a most important question, and, if you agree, you might perhaps open your columns for a discussion.

My quota, if you think it worth while putting i "Eggs," is as follows:—

Breed, "White Leghorns" Pullet, cost of rearing 6s., say to 1st October, cost of food and incidenta expenses from 1st October to 30th September the following year, 12s.; 180 eggs at 1¾d. each—26s. 3d Profit on pullet, 8s. 3d.

Her second year's laying: Cost of feeding, etc., a before, from 1st October to 30th September the following year, 12s., but she lays 16 per cent. fewer, sa 155 eggs, at 1½d. each—19s. 4½d. Profit on her secon year: 7s. 4½d.

Her third year laying: Cost 12s. as before, but sh lays 14 per cent. fewer than in her second year, sa 133 eggs at 1½d. each—16s. 7½d. Profit on her thir year: 4s. 7½d., a considerable drop.

It would appear that if people agree that the cos of rearing a White Leghorn pullet is about 6s., tha owing to the fact that she lays during the winter month more eggs than in her second or third year, in consequence of which we can put the average price of th eggs at 1¾d. instead of 1½d., it is more profitable t replace hens by pullets, at any rate, after their secon year.

I have allowed for a pullet laying 180 eggs in he pullet year, though it is a very good pullet floc average.

This is merely a simple line of reasoning, and doe not include the risks of rearing losses by disease.

It will be noted that a profit on a pullet is roughl 1s. more than the profit of a second season bird, pr vided rearing costs can be kept down to 6s. a head.

Personally, I am of the opinion that, provided thi discussion is pursued, and reliable statistics are forthcoming, the profit on a White Leghorn pullet of goo laying strain on a well-managed farm, would be mor than 1s. over the second season bird, for the ver good reason that she lays eggs regularly from Octobe to February, if hatched at the right time, whereas th second season bird has ceased her production at th end of her pullet year in October, and is usually not i full lay again till the latter part of February of th following year; if she is, it is the exception.

On the above lines of arithmetical reasoning on plant of 1,000 head of stock, the owner, by replacin 100 per cent. of his pullets, instead of the usual 5 per cent., would stand to increase his profit by £2 approximately.

I, however, would advocate that in that case h should keep sufficient second season hens for breedin stock.

Yours faithfully,
G. D. F. SHEWELL.

P.S.—Mr. S. G. Hanson in his book on "Comme cial Egg Farming," ninth impression, page 30, says "I believe that it would be better to restock thre quarters of the houses every year, as far as the incom from Commercial Egg Production alone is concerne and use only the other quarter for breeding stock."

We are afraid that our Correspondent's estimate of the cost rearing a Leghorn pullet to the productive age is too low, ar as his argument is based on that he may find it difficult sustain.—(Editor).

CO-OPERATIVE POULTRY PRODUCTS, LIMITED.

To the Editor of "Eggs."

Dear Sir,—We have received a circular entitled "National Egg Scheme for Poultry Farmers," sent out by Co-operative Poultry Products, Limited, of which Society we are members.

As the Co-operative Poultry Products, Ltd., was initiated and discussed in the columns of "Eggs," it is presumed that the readers of "Eggs" form a considerable proportion of the members of the Society, and to these we wish to offer a few comments on the proceedings of the Society to date.

The scheme was initiated and the Society was formed to carry out one object, and one object only—namely, "The Purchase, Treatment and Disposal of Poultry surplus to the requirements of the Breeder and Rearer," and the original reference was in particular to the surplus cockerels and hens of the light breeds, mostly Leghorns, produced by the commercial egg farmer, and it was with this object that the society was formed and subscriptions received in May, 1924.

In the report of the first general meeting, held on July 3rd, 1924, there is no mention of any practical suggestion for proceeding with the main object of the society.

On the contrary, it was "considered most desirable to impress on all members that they should not use the society's station as a dumping ground for inferior stuff."

In other words, assuming that "inferior stuff" includes Leghorn cockerels and hens, members are requested not to make use of the society for the very purpose for which it was formed.

Since this meeting the slightly puzzled member has been left to dispose of his surplus birds at his own sweet will, and to wonder how long it takes a Co-operative Society to function. To-day, however, arrives the "National Egg Scheme," on lines already adopted by another society, and it will be noticed that a manager of the egg department has already been appointed, presumably drawing a salary from the funds of the society, and this before the ordinary member has been relieved of one single surplus Leghorn cockerel or hen.

We wish to point out that the one and only object of the society has apparently been completely shelved, and to suggest to members that the Committee of Management be requested to report progress made in the original scheme before inviting subscriptions for other objects.

Yours faithfully,

NOEL BUCHANAN.

We forwarded a copy of Mr. Buchanan's to the chairman of the company, and the following reply has been received from Mr. Foulkes—(Editor):—

Dear Mr. Newman,—I am much obliged to you for sending me a copy of a letter signed by Mr. Noel Buchanan, criticising the action of C.P.P., Ltd.

As chairman of the society, may I be allowed to reply to the points raised, and to thank Mr. Buchanan for giving me the opportunity of explaining the position of the society to other members of the S.P.B.A.? Those who were present at the general meeting of members on July 3rd last will remember that I explained that the amount of capital subscribed up to date by members was mainly in the form of shares with half the amount paid up. This necessitated applying for the Government loan which had then just been announced as available for approved Co-operative Societies. The application was made, but as the Special Committee set up by the Government to deal with such applications had to be organised, some delay took place, and we consider we have been very successful in getting the C.P.P., Ltd., scheme through by the middle of August, and the loan will be made in a short time.

Until this was definitely decided the Committee of C.P.P. could not proceed with its plans, as the nature of the whole concern depended upon the receiving of such loan. It may interest Mr. Noel Buchanan and others to know that the Committee are now awaiting tenders for the work. That is the position at the moment, and it must be obvious to all that it is impossible to deal with birds and to run the scheme until the plant has been installed.

Rome was not built in a day, and if Mr. Buchanan realised the full objects and possibilities of the scheme he would hardly have written "that the one and only object of the society has apparently been completely shelved."

The quotation in Mr. Buchanan's letter from a statement I made in my remark to members at the meeting, "that they should not use the Society's Station as a dumping ground for inferior stuff," has been used without the context and certainly did not refer to "Leghorn cockerels and hens." C.P.P., Ltd., has got to make a name for its output if it is to get the best prices for its members, and it would be ruination if members were to regard the station as a dumping ground for all their inferior and useless stock while they marketed their best stuff elsewhere.

Many co-operatives societies in the past have come to grief solely through the members proving disloyal to their society and using its resources, just as far as it suited their immediate requirements, quite regardless of the welfare of the society and their own individual benefit from its ultimate success.

Mr. Buchanan further criticises the action of the Management Committee in dealing with the marketing of eggs for its members.

I regret that Mr. Buchanan was not present at the first meeting in January last, when Mr. Hanson specially referred to the marketing of eggs and other products of the poultry farmer. In the prospectus of C.P.P., Ltd., on page 2, it is stated "it is also intended to exploit the possibilities of the collective marketing of eggs." This possibility was referred to in my remarks from the chair at the meeting in July. When the committee were asked by a large number of members in various parts of the country that C.P.P. should take up the subject of marketing of eggs for its members it was felt advisable to do so, and I fail to see Mr. Buchanan's objection. The committee has gone most carefully into the matter, and has had evidence of the great possibilities there are in the proposals put forward, and I feel sure that when Mr. Buchanan knows what has been already accomplished, and realises the future possibilities of the scheme which has been launched, he will be one of those many who will be anxious to reap the benefits.

All now depends upon the loyal support of the members of C.P.P., Ltd., for unless this is forthcoming—and the committee have already had ample evidence that the majority of the members are out to give all the assistance they can—the committee cannot achieve those objects for which the society has been formed—viz., the betterment of the prices obtained by its members for their poultry products.—Believe me, yours sincerely,

P. HEDWORTH FOULKES,

Chairman of Poultry Products, Ltd.

September 11th, 1924.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

KEIGHLEY AND DISTRICT BRANCH.

YORKSHIRE FEDERATION INTERNATIONAL LAYING TEST.

At a Committee Meeting of the Yorkshire Federation of Poultry Societies, held at Leeds on September 4th, it was resolved to reduce fees in Class B. in their Laying Test from 15s. per bird to 7s. 6d., to all members of a Federated Society. Any affiliated society having 100 entries in Class C., Sections 9, 10, from its members, will be granted a section of their own with their own housing. Such sections will be known by the name of Federated Societies making the required number of entries, and special medals will be awarded. Any member of the S.P.B.A. may take advantage of this reduced fee in Class C. on payment of the minimum subscription of 2s. 6d. to the Keighley and District Branch of the S.P.B.A. All members of this Branch must notify the Secretary, Mrs. Wilson, Minorca Farm, Denholme, Bradford, the number of entries they wish to make. In addition to the Federation Medals, the S.P.B.A. Challenge Cup will be awarded to the owner of the pullet producing eggs of highest cash value in Section 9. The "Mrs. Wilson" Challenge Cup will be awarded to the owner of the pullet with the highest cash value in Section 10. Mr. S. Lawton will give a silver spoon for best record of White Leghorn Pullet. The UVECO CEREALS, Ltd., have promised two 14lbs. bags of Uveco Poultry Foods for the best record of Brown Leghorn. Mr. H. Dixon has promised goods value one guinea for the best White Wyandotte. It is hoped to secure other Specials for the different breeds. Further particulars and schedules may be had from the Secretary, Mrs. Wilson, above address.

The Scientific Poultry Breeders' Association.

THE COUNCIL MEETING.

The Monthly Meeting of the Council was held at the Memorial Hall, Farringdon Street, on Wednesday, 10th September, the President, Mr. J. G. Kitson, in the chair.

Present:—Mrs. Hunter, Miss Maddison, Messrs. J. Smart, F. W. Wait, Lester Spurgeon, A. H. Paine, E. J. Meekings, E. Bostock Smith, J. H. Dowden, P. Hedworth Foulkes, the Treasurer and the Secretary.

Minutes of the last meeting were read, confirmed, and signed.

SECRETARY'S REPORT.—The Secretary reported that 79 new members had been elected during August. This was a record for the month.

There had been a great demand for Mr. Capper's book, and for the "Handling and Observation" Charts.

He mentioned that several complaints had been received from members who had sent old hens and other stock to advertisers in the Poultry Press. Nothing could be done in the matter, but he thought that a strong warning should be issued to members advising them to ascertain the bona-fides of these advertisers before they sent to them. He mentioned one case where a member had forwarded 27 cockerels, and three weeks afterwards, when applying for the money, the following reply was received:—

> "Dear Sir,—We regret to inform you that owing to a very bad season here, the above concern has not been a success. It has been decided to stop receiving consignments and payments of accounts until it can be ascertained what payments can be made after outstanding accounts have been collected. The Proprietor is prepared to settle accounts to the last farthing if given time to do so. It is, therefore, requested that costs are not incurred against him to the detriment of creditors."

In such matters as this they could do nothing. It was only an instance of how readily people will send stock and produce to any advertiser without making the least enquiry as to his bona-fides. As a rule these people were not worth powder and shot, and in two or three cases he had found, on investigation, that the address given was nothing but a stable with the number chalked on the door. In the one case which they had put in the hands of their solicitors, they would have to await developments. The difficulty was that although they received so many complaints, many of those who wrote desired that their name should be kept out of it, or refused to come forward and help.

He stated that Mr. Meekings and he had been asked to visit the Liverpool District Branch on Saturday, 27th September, and were lecturing there—Mr. Meekings on "Planning a Poultry Farm," and he on "Some Everyday Questions," at 13, Hackens Hay, Liverpool, at 6 p.m.

TREASURER'S REPORT.—The Treasurer's report was submitted, declared satisfactory, and adopted.

It was agreed that the Balance Sheet for the year should be printed in "Eggs" before the General Meeting, and 500 copies should be printed for the use of members at the General Meeting.

Mr. Mudie-Draper, as Editor of the Register, said that estimates had been received for printing. These were submitted, and on the proposal of Mr. Dowden, seconded by Mr. E. Bostock Smith, that of Messrs. Lakin and Fennell, of Leicester, was accepted. It was stated that four tons of paper would be required for the publication of the Register.

GENERAL MEETING.—The Secretary stated that a resolution had beeen received from Major H. C. Few for the General Meeting, in respect to the payment of travelling expenses of members of the Council and the standing committees.

He also stated that Mr. Frank Snowden and Mr. Fletcher-Hearnshaw had been nominated as members of the Council. The retiring members were Mr. F. W. Wait and Mr. E. Bostock Smith. Both were eligible, and sought re-election. There were three vacancies.

CANVASSING FOR VOTES.—It was decided to make the following recommendation to the General Meeting, to be added to the rules:—"That no candidate for a position on the Society or for membership of the Council be allowed to canvass for votes, and that in the event of any infringement of this rule his election would become invalid."

It was proposed that the General Meeting should be held on the Wednesday of the Dairy Show Week, at 3.30 in the afternoon, and, if possible, that a room should be obtained outside the Show, and that tea should be provided. If the Council found it possible to obtain a room, an announcement would be made "Eggs," and tickets will be obtainable, by all those who desi to attend the meeting, from the Secretary.

FOOD PURCHASE SCHEME.—The President said that the had been severely handicapped in the progress of this scheme b an unlooked-for event. The Committee, however, were hard work on the scheme, and they hoped to be in a position to gi full details to the General Meeting.

The date of the next meeting was fixed for Wednesday, 8 October.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

APPLICANTS FOR MEMBERSHIP.

Cook, Ltd., William H., "Cooks' Poultry Farm," Orpington, Ken
Harper, Ely, 40, West Leeds Street, Keighley.
Sugden, Horace, Bunkers Hill Farm, Exley Head, Keighley.
Drayton, W. J., Innisfree, Higher Sylvan, Exeter.
Griffin, C. J., Denton, Branksome Avenue, Stanford-le-Hope, Esse
Graham, E. F. Stuart, The Gables, Condette, Par Ponte-de-Brique P de C, Franc
Leddra, H. R., Station Road, Wing, Nr. Oakham, Rutland.
Buckland, W. J., 10, London Street, Basingstoke.
Pickup, N., 123, Dill Hall Lane, Church, Lancs.
Ashley, H. J., 45, Henry Street, Rishton, Blackburn.
Cadell, Mrs. C., 3, Branfill Road, Upminster, Romford.
Bolton, Edgar D., Leeming on Ulswater, Penrith, Cumberland.
Lambley, John R., Normanton on Cliffe, Nr. Grantham, Lincs.
Blunt, C. F., Sibthorpe, Newark, Notts.
Plowman, Fred, 128, Wath Road, Elsecar, Nr. Barnsley, Yorks.
Ormrod, Jas., 220, Waterloo Street, Bolton, Lancs.
Harris, Mrs. W. A., c-o Westminster Bank, Ltd., Charing Cross Branch, London, W.C
Grainger, G. H., "Hollygarth," Linton, Collingham Bridge, York
Irwin, Mrs. M., Justice Town, Carlisle.
Yates, Frank, 281, Waterloo Street, Bolton, Lancs.
Hodgkinson, Levi, Stocks Farm, Chorley Road, Withnell, Chorley, Lan
Chearnley, Mrs. C., Ballyfeard House, Ballyfeard, Co. Cork.
Eddington, A., Southborough Road, Chelmsford.
Clapperton, R. Henderson, Green House, Ivybridge, Devon.
Eva, F. E., Ivy Cottage, Rosewin Raw, Truro, Cornwall.
Dix, Cyril J., Ducklington, Nr. Witney, Oxon.
Stanworth, John L., 11, Halifax Road, Haggate, Nr. Burnley.
Thomas, Joseph H., 21, Scarisbrick Avenue, Litherland, Nr. Liverpo
Pimblett, Arthur, "The Willows," Haydock, Nr. St. Helens.
Potter, Edwin, Middlefield, Newbold-on-Stour, Stratford-on-Avon.
Beattie, Andrew, The Coppice, Beech Avenue, Sanderstead, Surre
Alver, Frank C., Lower Hob Cote Farm, Oakworth, Keighley.
Potter, Mrs., F., "Kestor Bungalow," Slade Cross, Bovey Tracer Devo
Jones, Reg. W., The Warren, Horeham Road, Sussex.
Barnet, Thos., East Anglian Poultry Farm, Basildon, Essex.
Harrop, J., 29, Elizabeth Street, Denton, Manchester.
Foster, F., Old Lane, Rainford.
Behrens, Miss Ruth, Vron Yw, Denbigh.
Powell, A. J., Harley Poultry Farm, Presteign, Rads.
Bartlett, J., Uplands Poultry Farm, Ropley, Winchester, Hants.
Conyers, S., Brook House, Lothersdale, Via Keighley.
Hawkings, D., Lyveden Grange, Westenhanger, Kent.
Goff, Lady, Glenville, Waterford, Ireland.
Jackson, F., Outwood Poultry Farm, Wadsworth, Hebden Brid
Holgate, —, 1, Fraser Street, Burnley.
Waterworth, R., Green Lane Top, Yeadon, Nr. Leeds.
Jukes, Mrs. A., Jesse's Farm, Dinton, Wilts.

TO READERS.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that th must necessarily be scientists, pedigree breeders, or farmers on large scale to render themselves eligible for membership of t S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out assist all grades of poultry-keepers, from the proprietor of t 10,000- hen farm to the intensivist with his dozen or so birds; are entitled to equal benefits. The Five Shilling subscripti brings with it many advantages, namely: Free Advice by Po a Copy of the Annual Register, the Benefits of the Discou System, and many other advantages too numerous to menti here. You should write for full particulars to the Secreta TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex.

The Financial Year began on 1st September.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, SEPTEMBER 12th, 1924.

GRAIN AND FEEDING STUFFS.—A fair quantity of English wheat is reaching the markets, but condition is very variable. Demand is very good for the few samples fit for seed purposes, while ordinary lots sell fairly readily at about recent prices, averaging slightly over 12s. per cwt. Samples of home-grown malting barley are mostly of indifferent quality, and finest samples make up to 20s. per cwt.; on the whole malting descriptions average round about 16s. per cwt., while feeding samples command rather more money than last week. English oats are mostly in poor condition, and good samples sell readily at higher prices, while a few lots of really good Irish white oats sell freely at about 11s. per cwt. in London.

Imported grain of all descriptions meets a very firm trade, and quotations are generally higher on the week. Karachi barley averages 12s. 2d. per cwt., No. 2 Canada Western oats 11s. 2d. per cwt., and Argentine maize 10s. 1d. per cwt., compared with 11s. 10d., 10s. 10d. and 9s. 8d. last week, while grain to arrive commands fully spot prices.

Milling offals sell steadily and prices continue to show a firmer tendency, bran averaging a shade more than £8 per ton as against under £6 at this time last year, while middlings average £10 5s. per ton, against £8 12s. 6d. a year ago. Most kinds of meals also continue to advance. Oilcakes meet a steady trade at firm prices, cotton cakes being very scarce.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s; Hull, £7 7s; Liverpool, £8; London, £8 2s. Broad Bran: Hull, £8 17s; London, £8 17s. Middlings—Fine (Imported): London, £10 12s; Coarse (British): Bristol, £11; Hull, £10 10s; Liverpool, £10; London, £9 12s. Pollards (Imported): Bristol, £9; Liverpool, £8 5s; London, £8 10s. Rice Bran: Bristol, £8 10s; Liverpool, £8 10s. MEAL.—Barley Meal: Bristol, £13 5s; Hull, £13 3s; London, £13 15s. Maize Meal: Bristol, £11 12s; Hull, £11 5s; Liverpool, £11; London, £12. Maize Germ Meal: Bristol, £11 15s; Hull, £11 10s; London, £11 10s. Maize Gluten Feed: Bristol, £11 15s; London, £10 10s.

EGGS AND DEAD POULTRY.

The best grades of eggs are in improved request at higher figures, 1st quality British making 21s. 6d. to 22s. per long hundred as against 20s. to 21s. 6d. last week. There is no change in quotations for dead poultry, demand generally being quiet, although recent low prices are stated to have led to larger buying in London.

Week-end Prices—Eggs (per 120): British, 21s 6d, 19s 0d; Irish, 19s 0d, 17s 6d; Danish, 20s 6d, 18s 0d; Dutch, 23s 0d, 19s 6d; Italian, 17s 6d, 17s 0d; Belgian, 19s 0d, 17s 9d; Russian, 13s 0d, 10s 0d; Chinese, 13s 6d, 12s 6d; Lithuanian, 15s 6d, 14s.

Dead Poultry (per lb.): Fowls—Surrey, 1s 9d, 1s 4d; Irish, 1s 4d, 1s 0d; Others, 1s 7d, 1s 2d. Ducks, 1s 2d, 1s 0d: Geese, 1s 3d, 1s 0d.

EGGS.

Per Doz.—Ashford: First, 2s 4d; Second, 2s 0d. Birmingham: First, 2s 1¼d; Second, 1s 10¾d. Bridgwater: First, 2s 2d. Carlisle: First, 2s 2d. Chelmsford: First, 2s 4¼d; Second, 2s 2½d. Denbigh: First, 2s 3d; Second, 2s 2d. Derby: First, 2s 1d. Dorchester: First, 2s 2d. Exeter: First 2s 2d. Hereford: First, 1s 10d. Ipswich: First, 2s 5d; Second, 2s 0d. Lincoln: First, 2s 0d. Llandilo: First, 1s 11d; Second, 1s 10d. Montgomery: First, 2s 0d. Newport (Mon.): First, 2s 1d; Second, 2s 0d. Norwich: First, 2s 1d. Oswestry: First, 2s 4d; Second, 2s 3d. Penzance: First, 1s 9d; Second, 1s 8d. St. Ives: First, 2s 0½d. Salisbury: First, 2s 3d; Second, 2s 0d. Shrewsbury: First, 2s 2d; Second, 2s 0d. Skipton: First, 2s 0d. Truro: First, 1s 10d; Second, 1s 9d. York: First, 2s 3d; Second, 2s 2d. King's Lynn: First, 2s 1d; Second, 2s 0d.

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 17th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

FOWLS.

Per lb.—Birmingham: First, 1s 4d; Second, 9d. Derby: First, *4s 9d; Second, *3s 0d. Exeter: First, 1s 6d. Hereford: First, 1s 4d. Ipswich: First, 1s 8d.; Second, 1s 6d. Lincoln: First, *5s 0d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 8d; Second, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 3d; Second, 1s 0d. Derby: First, *5s 0d; Second, *4s 0d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *5s 6d; Second, *4s 0d.

* Per Head.

Classified Advertisements.

(PREPAID RATES).

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertion or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesd y's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

Exchequer Leghorn Pullets and Cockerels for Sale, bred from 2nd Crystal Palace Hen and Reserve, Crystal Palace and 1st and Silver Medal Bath and West cock. Price 15s. and £1 1s. each.—Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites, 1923 and 1924 Pullets and Cockerels of this new and excellent breed for Sale, bred from Winners two 1sts and Silver Medal, Bath and West, 2nd and 3rd Leicester, Birmingham, Crystal Palace, Reserve Olympia, H.C. Dairy. Prices, from £1 1s. each.—Innes, Brean Cottage, West Monkton Taunton.

Twenty White Wyandotte Pullets, four months old. Bred from trap-nested stock; 5s 6d. each; carriage paid. Satisfaction assured.—W. J. Lawry, Bissom Farm, Penryn. Cornwall.

For FORTHCOMING EVENTS see Pages at End of Small Classified Advertisements.

Feed for EGGS and get them

Ful-O-Pep will get out all there is in a bird right up to the limit of her ability to produce.

When putting your flock into its winter quarters put it on Ful-O-Pep—and keep it on it.

It isn't what a feed costs that counts—it's the cost of producing eggs. Ful-O-Pep costs much less per dozen eggs because it contains just what the birds want in a perfectly balanced, easily digested form. Ful-O-Pep gives greater production and a longer laying period.

Read the chapter "What to do in October" in the Ful-O-Pep Monthly Guide. It is free. See, too, particulars of the All-age Self-feeder.

FUL-O-PEP TRADE MARK
LAYING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE.

Tip several days' supply straight from bag to hopper. Give one mixed grain feed daily.

Sold only in sealed bags. When buying Ful-O-Pep always see our trade-marks: the word Ful-O-Pep and the two fighting cocks on the bag.

Guaranteed by Quaker Oats Ltd., 11, Finsbury Sq., E.C.2.

PULLETS.

FOR SALE.

Black Leghorns. Needing the room ha about 30 Black Leghorn Hens, 10s. 6d. ea and some 1924 Cockerels, 10s. 6d. each, Sale.—Innes, Brean Cottage, West Mo ton, Taunton.

White Leghorn Pullets, 1924; June, each; May, 12s.—Washington, Pine Far Wokingham, Berks.

Few 1924 March and April hatch Several 1923 Pullets. Full particulars fr — Toyne, S.P.B.A., Woodside P.F., Al Alford, Lincs.

Six White Leghorn Pullets, early M 1924, from daughters of Harper-Adams a National Gold Medalists, by Frank Sno den's cockerel, 10s. 6d. each; Cocker same price; Mothers cost 8s. 4d. each day-olds. Particulars — Hirst, M.S.P.B. Schoolmaster, Garforth, Leeds.

March, 1924, hatched Pullets, off fr range. R.I. Reds (Boucher's strain), Lig Sussex, also W. Dottes (William Cook a Sons' strain), 15s. each. Limited numb only.—Mrs. F. E. Howard, S.P.B.A., Dea croft, WestWinch Road, King's Lynn.

PULLETS.

Light Sussex, White Bresse, Black Minor from 10s. 6d. A few Cockerels, from 8s. —Crawford, Redwing P.F., Dilham, N wich.

LIGHT SUSSEX PULLETS, 1924.

Captain Strong, R.N., offers 250 Februar March, well-grown, perfectly marked, sple did layers.—Hillerton Poultry Farm, Bo Devon.

500

1924 PULLETS.

WHITE WYANDOTTES. } (Trap-nested)
WHITE LEGHORNS. }
R.I. REDS, LIGHT SUSSEX.
BARNEVELDERS.

Highest-class birds, reared on free rang Well-grown, large size; 15s. and one guin each, carriage paid, on approval. Redu tion for quantities. Pupils taken, a branches, Utility and Exhibition. Go accommodation.

HEATHLANDS POULTRY FARM,

Ottery St. Mary, Devon, Members of P. S.P.B.A., R.I.Red, W.W., and Barneveld Clubs.

A MORE ECONOMIC BREED, THE BLACK BRESSE.

We are Specialists of this valuable bree the best for the table and laying capacit For three years it won the first prize the laying competition of the Vaulx d Cernay (France). We had first prize Epernay, Marne, for beauty and utilit April pullets, 12s. 6d.; lots of 50, 10s. 6 each. Carriage paid to French po (Dieppe). All stock reared on free rang bred and fed on Tom Newman's formul

ELEVAGE MOULIN DE FISMETTE

JEAN MOLLE, FISMES (MARNE)

FRANCE.

Member of S.P.B.A., and Bresse Club c France.

GOLD MEDAL LIGHT SUSSEX

Early hatched Pullets and Cockerels, fro our 1923 National Test record-scoring pe and closely-related stock. Pullets fro 12s. 6d., Cockerels 21s. upwards.—M. E. an A. Robinson, Kingswood Poultry Farn Bawtry, Yorks.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 24th, 1924.

Editorial.

THE INHERITANCE OF FECUNDITY.

A correspondent writes:—

> "I read your editorial on the Inheritance of Fecundity in last week's issue with great interest, but am not clear as to whether you definitely deny that high fecundity is transmitted by the dam through her sons or not. If that is the case, are you not denying an axiom, which is impressed on all breeders, and one which you have repeatedly quoted yourself, that: 'The male is half the breeding pen.' An explanation seems to me to be desirable."

In reply to the writer, we have not denied anything. How can one be definite when so little is known? and when the opinions of those versed in the science of Genetics differ so widely. Pearl's theory that the dam transmits high fecundity through her sons, and not directly to her daughters, has not found universal acceptance. Goodale, with Rhode Island Reds, and Hurst, with Wyandottes and Leghorns, found it was not applicable with these breeds, and this raises doubts as to the correctness of Pearl's theory even as applied to Barred Plymouth Rocks with which he worked. It is not to be supposed for a moment that in spite of their findings, that either Goodale or Hurst would wish to minimise the value of the male bird, and we expressly stated in the article that the selection of the male bird would be as important as ever, at the same time giving reasons.

The theory which we put forward, and it is perhaps advisable to repeat that it is BUT a theory, was:—

> *That the degree of fecundity depends upon the physical constitution, which may be favourable to, or may INHIBIT its fullest expression.*

It was also suggested:—

1.—All hens are fecund.

2.—The dam does transmit her fecundity to her daughter direct.

3.—That they do not inherit high fecundity, but only the power to give full expression to the character—fecundity.

4.—That they partake of the physical constitution of both parents, that if the physical constitution of sire is the same as that of the highly fecund dam, then the probability is that the progeny will be highly fecund, but should it differ materially from that of the dam, then the fecundity of the progeny will depend on the degree in which they inherit the physical constitution of the dam or sire.

Conversely: If the dam be low fecund, and the sire bred from a highly fecund dam, we may expect the progeny to give expression to the racial character—fecundity, in the degree in which the sire is able to transmit the physical constitution of his dam.

If we observe a moulting hen, we note that the secondary sexual organs (the comb and wattles) shrivel when the feathers begin to drop, indicating that the ovary is becoming inactive. This is due, not to the dropping of the old feather, but to the development of the new, which "pushes" out the old, and the nourishment required for the new feather is diverted, so that the fowl ceases to lay, and only resumes when the new feathers are fully developed. Hens with great wealth of feather are almost always poor layers, so that one may argue, whether correctly or incorrectly remains to be seen, that if a hen is constitutionally inclined towards great development of feather, or for that matter, has a constitutional tendency to excessive fat, she is inhibited from giving the fullest expression to the racial characteristic—fecundity, because the constituents necessary for feather development or for the formation of yolks are diverted from the ovary.

If a hen transmits her fecundity through her sons, we know that she does not do so in the same degree to all of them, and that the two full brothers will often give widely different results, as far as the production of the progeny will be concerned; although both may be equally fertile. Observation of the external characteristics (not the body conformation) will show us certain differences, which will enable us with tolerable ease to select the best breeder of prolific layers. In a Wyandotte, for example, we shall look for a comb with plenty of working, well developed lobes and wattles of fine texture, flat bone, tight fine feather, free from creaminess, well developed saddle and neck hackle. If we had a full brother which exhibited characteristics the reverse of this, that is to say, a heavy comb with little working, soft feather, round bone, etc., we would not mate him even if he were the son of a 250 hen, for our contention is that he would transmit those characteristics to his progeny, and this would inhibit the full expression of fecundity which they have inherited from their dam, while one selected like the first would transmit the physical constitution which would permit the full expression of the character—fecundity.

It will be seen that nothing which has been written in any way tends to minimise the value of the male bird, nothing which indicates that the old axiom that he is half the breeding pen, is a mistaken one.

That there is a wide divergence of opinion as to the mode of the inheritance of fecundity among the experts is too evident, and if Pearl's theory as to high fecundity being transmitted by the dam through her sons, and not to her daughters direct, is disproved,

(Continued at Foot of Column on Next Page).

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

IS THE MOULT INFECTIOUS?

I have received the following letter from Dr. Readman on this subject:—

> "Is there any truth in a statement made to me yesterday by an experienced poultryman that moulting is infectious? Like many poultry people, I am short of room for the pullets now on point of laying, and I happened to say that I purposed putting some of the pullets with the old hens, and the above was his reply."

I mentioned a week or two ago that in the old days moulting was thought to be a disease, and if we regard it as infectious, it would seem that we should think so now. How the idea arose is easily understood. It is on a par with the assertion that barley causes liver disease, because we find so many birds with diseased livers in the barley-growing districts. Some people say the same thing of maize when they feed it in conjunction with potatoes or barley meal. It is the excess which causes the trouble, not the barley or the maize. If we feed excess of fish meal we get liver trouble, and yet I should be laughed at if I said fish meal caused liver disease by the very people who say that maize or barley will cause it, and condemn them as poultry foods. To come back to the moult. We take some young pullets, and place them with moulting hens. In a week or two some of them begin to moult, and we say: "The moult is infectious—there is the evidence," when really what has happened is that the pullets have been affected by the changed environment; they are nervous, do not assimilate their food properly, are probably bullied by the older birds, and may not for a time get enough to eat, get out of condition, and moult. Do we not know that a large number of the birds that are sent to laying competitions moult soon after arrival, in spite of all the care that is taken, simply as a result of their highly nervous temperament and the effect of the change on it? There is not the slightest evidence that the moult is infectious, nor is there any logical reason why it should be. In some flocks you will find an odd bird or two moulting in June, and others not doing so until November, so that if it was infectious, they must have been a long time taking the infection.

A FREAK.

Mr. Stuart Smith, writing from Kinoulton, Notts, says:—

> " You are not much in love with freak performances, but the following may interest you:—
>
> My wife was preparing to use a double-yolked egg, and emptied it into a bowl. Being struck by the size of one of the yolks, she opened it, and found a halfpenny securely imbedded in the yolk. I have heard of some weird eggs, but I think above beats the lot. The coin was not a bit worn down."

I hear there is a slight increase in the price of eggs in Nottingham since the above discovery.

INTENSIVISM.

Someone has written to ask whether I think that intensive poultry-keeping on a large scale has been "damned" in this country, because of previous failures. It is a very expressive way of putting it, which I will answer by saying that I don't think it is. On the contrary, it seems quite possible that intensive poultry-keeping on a very large scale may be successfully attempted. It is absurd to think because there have been failures that there is no chance of success; we ought to learn so much from those failures that success should be certain. I have no doubt that some who have failed will talk of their experience, and will say this is all nonsense because they have failed, but, thank goodness, one man's limitations are not necessarily those of another, and its no good rubbing in your experience if you haven't the reasoning power of an elementary schoolboy. My own impression is that before we can hope to keep fowls intensively, successfully, on a large scale here (and I am speaking of rearing intensively, too), that we shall have to make considerable experiments with various housing designs, to see in which we get the best system of ventilation, and one important factor will be plenty of light and floor ventilation without draught. I wonder if any of our members would like to occupy the dark winter nights by attempting to design a suitable house. After all you know there is a lot to be said for a system which might enable us to meet such a spring as the past without apprehension. If we could rear our chicks intensively, it would lessen our anxiety and increase our comfort, and the secret lies in ventilation and light. The feeding is a secondary consideration to these. You will realise I am not speaking of artificial light.

TABLE POULTRY AND EGGS.

Greatly increased interest is being taken in table poultry, and there is room for it, although one does not wish to encourage extravagant hopes. There is money to be made by those who study the subject thoroughly, and are prepared to carry it through on the lines indicated in the splendid articles which Mr.

EDITORIAL.—Continued.

we are much where we were 20 years ago. We have been told that winter laying is an inherited factor, but is it wise to deal with it as a separate factor? would it not be more correct to say that it is early maturity which is the inherited factor? high fecundity is admittedly correlated with this. How can we deal with all these factors separately? Are they not all one and the same—winter laying, spring, summer autumn laying—indicating the degree of the full expression of the character—fecundity.

larkson contributed to these columns. My only bject in writing this was to say that several inquiries ave been received as to where eggs for incubating for his purpose can be obtained. It will be realised that igh prices cannot be obtained, but there should be a air margin over those procurable for the new-laid egg. here would have to be a guarantee of fertility, say, 0 per cent. One could not afford to exceed this nless higher prices are offered than those generally aid. A good first cross would probably be the best, uch as Houdan-Sussex, Houdan-Bresse, or Faveolles-Orpington. It would seem that no one caters or this. Only last week I was asked if I knew of anyne who could supply 400 eggs weekly at 1s. per dozen ver the market price. Whether it would be worth hile to do so, and guarantee 80 per cent. hatchbility, I leave others to decide.

KEIGHLEY AND DISTRICT BRANCH.

Mrs. Wilson, Hon. Secretary of the Branch, asks ne to draw attention to the Great Open Utility Poulry Show, which is to be held under the auspices of he above Branch on Saturday, 1st November, in the rill Hall, Keighley.

For schedules and particular, applications should be nade to Mrs. Wilson, Minorca Farm, Denholme, radford.

Many Cups and Specials are offered.

On 24th September Mr. Percy Wainwright, Presient of the Castleford and District Society, is lecturing o the Branch at the Temperance Hall, Keighley. His ubject is "How to Always Have Eggs in Winter," ne which should greatly interest members.

THE REGISTER.

Mr. Mudie-Draper, the Editor of our Annual Register, asks me to remind members again that it will be impossible to include the names of those whose subscription is not paid by **15th OCTOBER** in the Register.

Each year a number of our members are disappointed because their names are not included, and many write to me saying that, as I know them personally, or as they have been members for some years, they feel they should not have been omitted. But, I should like to point out how impossible it is for me to prevent it. When subscriptions are received they are entered on a card, and all these cards, which indicate the subscription is paid, are forwarded to the Editor of the Register. Only the "paid cards" are sent, and it is quite impossible for me to think of, or for, any individual member who has not paid. **So please remember that October 15th is the latest date.**

The Poultry Farm, Horstead, Norwich.
28-11-23.

Dear Sir,—Since becoming a member of the S.P.B.A. (only a month or two) I have benefitted a very great deal from your splendid, helpful paper, "Eggs." It is a real boon to everyone short of "long service" in Poultry Farming.

Yours faithfully,
(Signed) Capt. W. T. BEALES.

Modern Poultry Feeding.

By TOM NEWMAN.

THE WELLINGHAM PULLET FEEDING EXPERIMENTS.

It will be seen that Pen "C" still maintains a strong lead, and there is every prospect that 7 of the 10 birds will pass the 200 mark before the test terminates. The best individual record has, however, been made in Pen "D," and this bird laid remarkably well during August—26 eggs—while 13 of the birds in the test laid 20 or more eggs during that month, and all on dry mash. As a comparative test of the merits of animal and vegetable protein I do not wish to attach any importance to the test, as it is on too small a scale. It has, however, revealed that we can obtain eggs in goodly quantities without using very large amounts of the expensive animal proteins. In pen "C," where only 3 per cent. of the mash was animal protein, the average will be well over 200 eggs per bird, if we omit the one which died. It is not suggested that the records are due to the feeding. That should be made perfectly clear. If the pullets had not been well bred, from good stock, they would not have laid as they have done in spite of all the feeding in the world.

WELLINGHAM PULLET EXPERIMENTS.

"A" (Blue Ring).

Ring. No.	Eggs. August.	Eggs. To Date.
121	N.M.17	184
228	N.M.16	112
235	Br.M. 9	171
250	18	205
337	21	194
388	N.M.	83
401	16	216
405	M.	120
—	—	137
—	—	128
Tot.	97	1550

Amount Consumed.
Mash: 40lbs.
Grain: 23lbs. 4ozs.
Total: 63lbs. 4ozs.

Total Cost: 6s. 7.1664d.

"B" (Red Ring).

Ring. No.	Eggs. August.	Eggs. To Date.
80	Crp. bd.	128
206	—	43
210	18	159
217	21	206
271	22	234
292	21	206
303	23	238
508	20	187
524	19	223
—	—	43
Tot.	144	1667

Amount Consumed.
Mash: 48lbs
Grain: 26lbs. 2½ozs.
Total: 74lbs. 2½ozs.

Total Cost: 7s. 6.8435d.

"C" (Green Ring).

Ring. No.	Eggs. August.	Eggs. To Date.
213	N.M. 1	171
229	23	212
256	14	197
257	21	224
265	M 2	178
273	20	219
411	26	221
413	21	196
525	19	198
—	—	74
Tot.	147	1890

Amount Consumed.

Mash: 52lbs.

Grain: 26lbs. 2½ozs.

Total: 78lbs. 2½ozs.

Total Cost: 7s. 10.2572d.

"D" (White Ring).

Ring. No.	Eggs. August.	Eggs. To Date.
138	Br.M.12	155
234	21	180
261	26	244
333	15	210
392	M.12	165
394	16	148
285	Crpbd. Light killed	59
—	—	153
—	—	143
—	—	103
Tot.	102	1560

Amount Consumed.

Mash: 24lbs.

Grain: 17lbs. 7ozs.

Total: 41lbs. 7ozs.

Total Cost: 4s. 11.5958d.

VITAMIN "A" DEFICIENCY.

I am sure the article on this subject by Professor J. R. Beach will have been read with great interest. The photograph of the bird depicted on page 166 of the issue of September 10th, suffering from what is said to be characteristic ophthalmia of Vitamin "A" deficiency, is typical of birds which we often see on the farms, and which are usually treated for "eye" roup, and, as before suggested, there is a possibility that what is a deficiency disease is often treated as roup. It would seem that yellow maize contains sufficient of the vitamin to protect fowls from this disease. The vitamins are very elusive, they have not yet been chemically identified, all the conclusions arrived at are by the deductive method, and there appears to be a danger that sufficient importance will not be attached to environmental conditions, apart from feed, when conducting experiments. In some cases the health of the bird must necessarily suffer because of the conditions in which these experiments are made. Is that always taken into account? If we had an experimental bird, for example, which, owing to close confinement and a diet which was known to be deficient in one of the vitamins, and which in order to get it vitamin free must also be deprived of the essential mineral salts, if this bird exhibited certain symptoms, and we were to give it cod liver oil, is it not reasonable to suppose that

(Continued at Foot of Column on Next Page).

Turkeys.

THEIR HOUSING.

By BERNARD REDDAWAY, M.S.P.B.A.

The housing of young turkeys is most important, as certain conditions have to be complied with, or the young birds will not do as well as they should.

A number of people are under the impression that the matured stock does not require to be housed; but experience indicates that all poultry should be given shelter of some kind for the night. The amount of food consumed by birds which live in the open is much greater than that consumed by birds having houses, as they have to make a great deal more bodily heat to resist the cold.

The keeping of turkeys in trees is also not very sanitary, as their droppings land in the same place week after week, and exposed to the wet as they are, soon become odorous and unhealthy. Even if the ground is scraped from time to time, which is not an easy thing to do, the lower branches cannot be cleaned when they become fouled, so the smell will still persist.

It is true that in the wild state the turkey sleeps among the trees, but it rarely stays in the same place for more than a week or two, so no ill results occur.

The changes of temperature which they are exposed to, when out of doors, are bad for them. Everyone knows how often the winter nights begin calm and warm, and end up with a high wind, and several degrees of frost; such changes weaken the bird's vitality.

Only the most simple houses are required, glass windows and patent shutters are not necessary. There is one thing to remember, when building the house, the airier it is the better.

The floor should be of earth, on a foundation of chalk or ashes. When laying it down the foundation ought to come first, and must extend for a good six inches beyond the house, on all sides. The house should come next, and the earth can then be put inside it, and beaten hard and level. If this is done the floor will always remain dry, even in the wettest weather.

The litter should always be kept very clean; the smell which comes from some poultry houses is so great that it is a wonder that anything can remain alive in them. Wheat or oat chaff makes a very good litter, as it does not easily become fouled.

The house must be dry and draughtless. A large number of the deaths which occur among young turkey chicks are caused by draught and damp.

Never overcrowd. It is a good plan to go round at about eleven o'clock at night to see if the houses smell unduly; if they do, and if the litter is clean, some of the birds should be removed. It will be found that sixteen square feet per bird is about what a matured turkey requires.

The following measurements will be found useful when constructing a house, to be used as a breeding house, or as a place in which to rear the young birds: The front, 12ft. long by 8ft. high, boarded up 4ft., with a fixed shutter coming down 2ft. the end of it being about 18 inches from the rest of the front; this is to keep out the wet. The sides should be 9ft. long by 5ft. at the back, the back should be 5ft. high by 12ft. long. A house this size will house a breeding pen of six hens and one cock. The perches should be about 3ft. from the floor.

(To be Continued).

MODERN POULTRY FEEDING.—Continued.

some improvement would be effected because of the high food value of cod liver oil, and apart from the presence of Vitamin A?

I must confess that I should hesitate to feed such a ration as that given by Professor Beach to three months old White Leghorns, with its very high protein content, and one wonders whether the results would have been the same had some carbonaceous food been substituted for the soya bean meal. It is possible, too, that some magnesium salts added to the salt mixture would have added to its value. What a puzzle it is to we laymen. We began with "A" Vitamin, then "B" was discovered, followed by "C." Now we have "D," on which we are told the value of "A" depends, and which, as far as my simple mind can understand, is oxygen. I wonder very much whether in the near or distant future we shall not wake up to find that the vitamins mean good protein, good fats, the mineral salts, and oxygen.

Someone has sent me a cutting from one of the daily papers, containing a list of the foods which are deficient or contain little of any of the vitamins. It was curious to observe that, with the exception of cheese, all were deficient in the calcium salts and in iron. What is there in the process of cheese-making which destroys the vitamins? How is it that a cream cheese loses vitamin A, for example? A week or two ago I showed that we had two opinions from America as to the cause of leg weakness, one attributing it to a deficiency of vitamin A and one to a deficiency of vitamin B. Now I have examined hundreds of rations during the past year or two, in which there can be no question as to there being a deficiency of both these vitamins, and yet leg weakness has occurred. As I have said before, in some cases cod liver oil has been used to supply vitamin A, and in some yeast to supply vitamin B, and in many cases both, and yet leg weakness still occurred in some of them, while in others, where neither was used, there was no greater amount of leg weakness. There does, however, seem some evidence that where the fat content of the breeder's ration was fairly high we got healthier and more vigorous chicks.

Notes on Utility Ducks.

By A. HAROLD PAINE.

The interesting article by Mr. Bernard Reddaway on the "Comparison of Profit-Making Qualities of Ducks and Fowls" in our last issue is certainly quite unbiased, as much so, perhaps, as the short series of articles which I contributed on this subject in March and April last—which also reminds me that I have been rather remiss in my contributions lately, but I hope to make up for this from now onwards. I may be allowed, perhaps, to deal with one or two points which Mr. Reddaway mentions. First of all, the disposal of surplus males. It is sometimes difficult to find a market for these, but if one happens to be living in the neighbourhood of some health resort then the difficulty does not arise, and the price one is able to obtain should rather more than cover the cost of raising up to the time of selling.

Now, with regard to the housing. For the £10, which Mr. Reddaway suggests, a large and first-class house can be purchased, or if the breeder has the facilities, it can be made on the farm at about three-quarters of that sum. In such a house about one hundred youngsters could be accommodated for quite a long time, and at maturity there would be ample room for between thirty and forty birds. The house, with a little care and attention annually, should be quite good for ten years, so that the cost of housing per bird is rather moderate. I quite agree with Mr. Reddaway that it is cheaper to trap-nest a duck than a fowl, but the cost is governed by the method of trap-nesting adopted. Here is one that will not entail any considerable outlay.

Tate Cube Sugar Boxes are obtainable at almost any grocers or store at about 1s. each. The trap-nest front suitable for ducks can be made at home, or purchased at about 2s. It does not take many minutes to fix the trap-nest front to the box, leaving a space at the top of the front of about three or four inches, which may be wire-netted. Half-a-dozen such boxes and fronts would, therefore, cost about £1, and with these you have your trap-nest house complete for six birds, and for any further number at a proportionate cost.

Now the cost of penning the birds may be less than Mr. Reddaway suggests, as I do not consider 4ft. netting at all essential, 3ft. high being ample.

In my last series of articles I gave the figures of comparative egg production of pullets and ducks during the 44 weeks of the 1922-23 Bentley Test, together with figures that I received from time to time from breeders who were trap-nesting their own birds, and another further record which I recently recently confirms what I then wrote about the advantage of the average duck over the average hen as a layer. A pen of six ducks was purchased in the summer of 1923.

(Continued at Foot of Column on Next Page).

Some Fruit-Growing Notes
to help Poultry-Keepers.
By F. W. WHEELER, F.R.H.S.

CUTTINGS, RASPBERRIES, BUSH APPLES.—In glancing over my last notes it struck me that perhaps the remarks about "beds for Black Currant Cuttings" were incomplete, so I will add another word.

In making the trench for these, or anything of a similar nature, I ought to have said that it is best to make it in a V shape with one face almost perpendicular, against which the slips we are striking can be placed upright, so when replacing soil it is more easy to press it firmly against the base of the cuttings.

Privet, so useful for hedges, and wind breaks, strikes exceedingly easy, and I expect that if you have not any hedges from which to take cuttings, no doubt your neighbours will give you any amount, as in the autumn they often trim them up, and there are plenty which are either thrown away or burnt.

When we do not require to take a large number of cuttings, I find a quick and easy way is to have a line and dibber, and plant them out in short rows, or groups, six inches apart (almost like you put out cabbages, etc.), and when doing it this way I like to have a little sand put into the bottom of each hole to help quick rooting, but be sure the soil is rammed against the base.

RED CURRANTS and GOOSEBERRIES strike as easily as BLACKS, only most like to remove the lower buds on these cuttings (which would go under ground), and thus obtain bushes with short legs. I prefer this myself, for you will remember I explained fully the great difference (in fact opposite methods) of pruning REDS and BLACKS, and that for the former we do not require each year to encourage fresh growths from the base of the bush as is essential for the latter.

RASPBERRIES. Another word on Autumn pruning and planting. I have read several articles as to whether it is best to cut out the old wood of these immediately they have finished fruiting, or leave it for the end of the year, as some claim that, if left, these old canes before their leaves fall help by continuing to store, at the base of the stools, food that will go to nourishing next year's fruiting canes. On the other hand, some say that the gain to the new canes by cutting out the old ones quickly lets in the sun and air for ripening the wood for the next crop, and is, therefore, the greater gain. Personally, I do not think there is much difference between the two methods, and I rather prefer to prune early and get the old canes cleared out, and burnt, before the damp dull days are upon us. The work is more pleasant if done now, and one job less waiting to have our attention at the end of the year, when poultry-keepers are turning their attention to early incubating.

It is surprising what an improvement in size of fruit in the raspberry crop if you can let the poultry run amongst the plants, and just divert them to adjoining ground while the canes are fruiting.

BUSH APPLES. It may be that some poultry-keepers have this form of tree where they want to run poultry, either planted before they came, or put in before it was thought that birds would have to run under them. Now if this is the case, and the trees are over seven years old, I might pass on a tip, as the result of an experiment I have been trying this summer.

Bearing in mind that one reason why half standards, or standards are advised, is to avoid birds perching in the branches and picking fruit and buds. Then for those with bush trees they will find this trouble is avoided, or considerably reduced, by giving the birds a perch just off the ground, and under the shade of the bushes For my experiment I have been using 6ft. poles, fixed to two stakes driven into the ground, so that birds perch about nine to twelve inches high. These I put on the north side of the trees, so that when the sun is hottest the birds would thus have the maximum of shade.

I am also coming to the conclusion that as the bush form of tree gets about ten years old, and naturally the lower parts of the main stems become bare of fruit-bearing spurs, the fruit and buds are then practically out of reach of the birds, but it partly depends on how the trees were pruned and trained in their early years, and whether a spreading or upright habit was encouraged. Naturally the spreading habit (and even downward tendency of growth) of "Lane's Prince Albert" would not do for bush tree work and poultry. On the other hand, "Worcester Pearmain" or "Lord Derby" are fine upright growers, and where we have this type the birds are less likely to want to perch up amongst the branches, especially if they are of the heavy breeds.

I am also finding that ducks can more easily be run successfully amongst bush trees, as fruit and buds are soon out of their reach. and the question of perching does not occur.

I hope next week to refer to the planting season now coming along, and touch on Strawberries, in particular a query from a correspondent.

NOTES ON UTILITY DUCKS.—Continued.

These birds were very carefully trap-nested, and here is the record:—

No. of Duck.	Started Laying	Eggs (11 months)
1.	Sept. 7th.	294
2.	Sept. 4th.	237
3.	Sept. 8th.	276
4.	Sept. 12th.	288
5.	Sept. 19th.	261
6.	Sept. 10th.	277

Duck No. 2 contracted a chill in January, and did not lay for three weeks.

These ducks were bred from birds of good laying strain, and their average of 272 eggs per duck in eleven months is one that, to the best of my knowledge, has never been attained by any breed of pullet.

I do not know what feeding methods were adopted, but allowing £5 for food consumed, which I consider a fairly high allowance, and reckoning the average value of the egg at 2d., a gross profit is shown of over £8 on the six birds.

Another pen of five birds of the same strain is at present competing at Stormont, Ireland, and although one bird has died, the pen has produced in eleven months 1,036 eggs to the total official value of £10 8s. 10d., which works out at nearly 2½d. per egg, so in estimating the value of the egg at 2d. in the previous pen, my readers will agree I have suggested a low average.

To say that the laying life of a duck is about a year longer than that of a fowl is certainly a very moderate statement, and is confirmed by the fact that one of our noted breeders has a special pen of three ducks, now seven years old, and their autumn production in their fourth and fifth laying seasons was a remarkable one.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

A. J. H. (Basingstoke). I had not seen the cutting in the "Daily Express," to which you refer, but the theory is by no means a new one. It is disproved by the fact that females with one ovary produce both sexes. Further, in the hen only the left ovary and its duct reach maturity. I cannot say whether any experiments have been carried out to support the claim which is made, but here is a case which, I think, disproves the writer's contention that the male has no influence on sex. A male bird was mated to three lots of six hens of different breeds in one season, and from every mating the preponderance of pullets was very remarkable. It was suggested over ten years ago in "Eggs" that the female determined the sex, and that by breeding from hens which uniformly gave a preponderance of pullets, we might perpetuate a pullet strain, but such examples as that given above would appear to refute the idea, nor is it an isolated one. These claims to pre-determine sex generally find their way into the papers at this season of the year, when Parliament is not sitting, and something sensational is needed. There are, at least, a dozen theories as to the determination of sex; some have been disproved and some are waiting to be.

C. T. (Bristol). The state of the feathers you send, which have become frizzled and the shafts dry, is due to a parasite located in the glands at the roots of them, which lives on the secretions which should nourish them. It is not a very common trouble. Soak the affected part thoroughly with a two per cent. solution of Izal. You will see the skin is slightly discoloured, pull out the old feathers which are shrivelled, and give a little flowers of sulphur in the soft food. (2) It is a pity that the pullets from this hen are such a poor lot. It is unlikely that the male is at fault. What is more probable is that they are suffering from the over-production of the dam, as you say she did not moult until December, then took a short rest and started again. There is nothing you can do except give them plenty of nourishing food, milk if you can get it, but the chance of their turning into really good stock is a remote one.

Worried (E. Yorks). Your birds are hanging in the moult, because you have been under-feeding them badly for a long time. In the first place it is a very bad mistake to make to take such steps as you did—starve the birds to throw them into a moult. If you want to get bird to moult quickly they must be in good condition when they start. A half-starved bird cannot grow feather. She needs what food she gets for body maintenance. Now omit the clover meal and malt culms from the mash entirely. Replace with one part maize meal, and one part soya bean meal; add four per cent. linseed meal, and, instead of the oats give wheat. It seems to me that you are under-feeding all your birds, and this, to some extent, would explain the small eggs. You could not practise a worse form of economy. (2) White Leghorn males mated to Red Sussex hens, will not give chicks the sex of which can be detected at hatching. If you mate Red Sussex males to White Wyandotte hens, the pullet chicks will come buff, and the cockerels white or silver.

N. D. D. (Northampton). No advice that I can give you will help you to run the incubator more successfully next season than last. It is no good blaming the makers. You must realise that breeding stock kept under such conditions as you describe could not give a high percentage of hatchable eggs. It is the eggs which were at fault and not the incubator. Under such conditions as yours it would be better to buy sex-linked chicks in the spring. The samples are of good average quality, except the ground oats, which contain an excessive amount of husk. (3) You would do better with Buff Rocks than Orpingtons.

F. H. (Ponteland). There is no reason whatever to alter the mash formula for the winter months. You will see the formula which I have given in last week's issue under Modern Poultry Feeding. This is the best I know as a layers' and breeders' mash. We have so often given these duck mashes in "Eggs" before, and there is one in the Annual Register of the S.P.B.A. The following would be a good one (parts are by measure):—Two measures bran, four middlings, one biscuit meal, one G.O., and one fish meal. This will do for either layers or breeders. No alteration in the formula will bring your May-hatched White Leghorns forward more quickly. The best way will be to give them an additional feed. Cover some good, sound oats with cold water, put them on the fire, and allow them to simmer, and when they have absorbed the water, dry them off with middlings, and give as an extra feed. To fatten your Buff Orpington Ducklings give them two parts barley meal, two parts S.G.O., and two parts coarse middlings, and half part fish meal. This should be given for about twenty days before killing them. You should starve them for twenty-four hours before commencing to fatten. Yes, geese can be kept without a small pond.

G. R. (Staplehurst). I cannot say what the vegetable matter is in this mixture. The analysis is good, and there is a very high percentage of animal protein. You could use it in the mash up to 20 per cent. It would be impossible for me to say whether the vegetable matter is indigestible unless I knew its nature, and this is too finely ground for me to be able to express an opinion.

F. T. (Lower Woodhead). A good formula for your April-hatched birds would be:—1lb. bran, 1lb. alfalfa meal, 4lbs. middlings, 1lb. ground oats, 1lb. maize meal, 1lb. meat and bone meal or fish meal. If you have plenty of green food you could substitute bran for alfalfa meal, as it will be much cheaper. The house would accommodate 24 pullets. I am glad to have your appreciation of "Eggs."

J. M. R. (Monifeth). The photo of the White Wyandotte pullet shows a very good type of bird, with a neat head, which we always expect to see in the really good layer. She has plenty of body depth, good long back. Yes, I should breed with the cockerels you have got from her next year. Her record of 78 eggs during the winter months, and 259 with one month to go, is exceptionally good. Of course, I can only give you that advice assuming that the birds are thoroughly well developed, healthy and vigorous.

T. L. B. (Finchhampton). It would be impossible to tell you whether there was an excess of salt in the fish meal, except by a chemical analysis. You could get this done by your County Analyst, and it would possibly cost you half-a-guinea. If there was an excess of salt, the birds would be very thirsty. The sample is smelly, and I do not consider it a good one, but I could not definitely say it was due to an excess of salt. Is it possible that you are feeding an excess of fibre in the mash? When you ask questions of this kind you should send the fullest details.

"Dillie" (Whitchurch). Please send samples in future, to me at Rudgwick, and not to the publishers. The sample of meat and bone meal is not a particularly good one, and at 8s. quarter cwt. the price is simply ridiculous. You should not pay more than 5s. or 5s. 6d. The ground oats are good average quality, and the price is quite moderate. The fish meal is a good average sample, and the same remark applies to the thirds. Yes, your mash is quite right for the winter. I would advise you, however, to get a cheaper sample of meat meal or to use fish meal. I am very pleased to hear you have found "Eggs" so useful.

"Pagan" (Blackheath). The sample of maize gluten feed contains a great deal of the offal of maize, and I do not think it a good one. You will note that for sometime I have advised readers not to use gluten feed, as we have, on more than one occasion, during the last few months, traced serious losses to its use. Whether this is due to a new method of extraction or to its being packed in a moist condition, I cannot say. The ground oats are a very fair sample for the money. Not high-grade, but still good enough. I do not think you will get anything better at a lower price. The alfalfa meal is quite a good sample, containing a good deal of the leaf and not too much stalk.

L. K. P. (Burleigh). The sample of wheat is a very good one. The oats are a little thin, but good enough to feed. The maize meal is excellent. The ground oats are good value. The middlings, however, are very poor, and not good enough to use, and the broad bran is not at all a good sample. In fact it is not broad bran at all. The meat and bone meal is just fair.

A. B. C. (Cirencester). I do not quite understand what you mean "as to some idea of the value of foodstuffs for fowls and for ducks." They would have the same value for each. Maize germ meal has roughly about the same value as maize meal, but is richer in the Vitamin "A." Maize gluten feed has a much higher protein content, but samples on the market at the present time are very highly unsatisfactory, owing to adulteration with a lot of maize offal. Also there have been complaints of serious losses from its use, either because of a new method of extraction, or its being packed in a damp condition. Cocoanut cake is a useful food. You can scald it and use one part with five parts middlings, one ground oats, and half meat and bone meal or fish meal. Palm kernel meal is not a good food for fowls. It is unpalatable, and our experience has taught us that it is not to be recommended. Rice meal contains too much oil for fattening. If you want the albuminoid ration:—Gluten meal has a ratio of 1 to 2.62, maize germ 1 to 6.43, cocoanut cake 1 to 3.26, palm kernel meal 1 to 3.27, rice meal 1 to 9.5. You must, however, understand that these ratios are not a safe guide as to the food values. Yes, poultry on free range can be fed with an automatic grain feeder and dry mash. They would need to have both the feeder and the mash hopper all day, but I cannot say that they would correctly ration themselves in the proportion of mash to grain. Most probably they would. There would be little danger of their over-feeding. Of course, it would not do to feed in this way if the birds were on the stubbles.

POST-MORTEMS.

P. The pullet, No. 207, was the victim of her virtues. She was full of yolks pressing, strangling, crowding, to get into the oviduct, and some had ruptured and flooded the abdomen, and one had died on the umbilical cord, and caused blood poisoning by absorption into the circulation. She was also very fat internally, and this added to the difficulty. There was no sign of disease of an infectious kind, nor was there any degeneration of the liver. You will, of course, recognise that you have been forcing the pace in a great laying strain that could not stand it. Whether or no you will be willing to reduce the tension by fasting and salines is another matter. It is, of course, a great temptation to obtain records.

A. F. C. The cause in the case of the Light Sussex n was tubercular peritonitis. All the abdominal gans, including the ovarium, were studded with ibercles, and there was a large amount of fluid in the vity. The lungs were also involved, which is rather nusual in birds. As this is an infectious disease, it ould be advisable to isolate this bird's immediate ssociates, and thoroughly disinfect the premises they ave occupied before using them again for others. he Ministry of Agriculture have published a leaflet, o. 78, on Tuberculosis of Fowls, which may be ob- ained free of cost by applying to the Secretary, 10, /hitehall Place, London, and which may be of ser- ce to you in your efforts at controlling the disease.

H. I wish you had sent some history with the ick, but you do not say a word. The condition we und was acute inflammation of the kidneys, and eath was presumably caused by uraemic poisoning, wing to their failure to eliminate waste. We spent ome hours microscopically examining the blood and arious glandular secretions, and in that of the kidney e discovered renal coccidiosis, the organisms being ery numerous. This discovery may prove of much nportance to the duck industry, but it is not en- ouraging to spend hours on members who do not pend seconds in forwarding information that might e helpful. If the coccidia are the primary cause, as ould seem to be the case, an internal preventive or a ure may be found.

D. M. B. In reply to your letter, dated 9/9/24, e do not consider that the R.I.R. pullet would make n absolute recovery from the rickets, or that it ould be desirable to breed from her, and, such being ie case, would recommend her destruction. We will turn the basket in due course.

D. R. S. The tumour examined by me is an inno- nt one, in the sense of not being infectious or harm- l to the flesh of a fowl, which would be perfectly ood to eat. It was a condensed egg with a capsule rmed over it, as over a foreign body, and so preven- d from doing injury to other tissues. This is how illets are rendered harmless when in situations from hich no egress is possible or operative interference ossible. Such isolation and absorption of the fluid ements is generally due to over-stimulation of the arium, and the production of eggs faster than they n gain access to the duct.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

POST-MORTEMS.

Readers are advised that in future reports of post-mortem aminations will be made by post only, and not through columns of this journal.

In the majority of cases submitted to Capt. Leeney the disease of a contagious nature, and it has been found necessary, in interest of the breeder, to reply by post, as the delay entailed fore the result could be published would be disastrous. The will be 5s

Such cases as may be of general interest will be reported in se columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances Capt. Leeney enter into correspondence regarding the report ade.

WYE COLLEGE DUCK LAYING TEST, 1923-24.

Eleventh period of 28 days. (August 7th to September 3rd).

SMALL FLOCK SECTION.

RUNNERS.

Owner.	Four Ducks. Month's Score.	Four Ducks. Score to date.	Single Duck. Month's Score.	Single Duck. Score to date	Five Ducks. Score to date.	Pen Position.
Berney, R. H.	—	511	15	148	659	33
Preston Hall P.F.	53	609	22	167	776	22
Partridge, W. R.	80	956	28	259	1215	1
Godsmark, H. S.	56	651	13	258	889	16
The Molassine Co.	64	878	1	185	1063	5
Johnson, R. A. & A. M.	26	758	—	75	833	20
Harling, F. W.	49	661	—	147	808	21
Harrison Bell, Miss	71	625	—	119	744	26
McKay, M. S.	61	573	27	185	758	24
Carrington, H. B.	41	721	8	149	870	17

KHAKI-CAMPBELLS.

Owner.	Four Ducks. Month's Score.	Four Ducks. Score to date.	Single Duck. Month's Score.	Single Duck. Score to date	Five Ducks. Score to date.	Pen Position.
Long, R. A.	23	561	21	195	756	25
Barr, A E.	27	837	—	173	1010	7
McLachlan, E. M.	50	711	—	242	953	11
Lower, Miss E. H	20	826	—	241	1067	4
Gill, R. H	57	820	1	194	1014	6
Chivers & Sons	62	736	—	220	956	10
Gwynne Evans, F. & H.	48	616	—	154	770	23
Forbes Panton, W.	9	657	17	195	852	19
Gibson, N. A.	79	556	15	158	714	30
Hardy, H. F. H.	49	791	15	182	973	8
Harrison Bell, Miss	52	766	—	137	903	14
La Trobe Bros.	78	781	—	154	935	13
Mundy, L. H. N.	58	733	—	220	953	11
Swanley College	52	769	23	192	961	9
Darrah, H. M.	46	733	—	160	893	15
Carrington, H. B.	46	885	—	220	1105	3
Mrs. Giffard & Miss Mallam	37	959	21	250	1209	2

BUFF ORPINGTONS.

Owner.	Four Ducks. Month's Score.	Four Ducks. Score to date.	Single Duck. Month's Score.	Single Duck. Score to date	Five Ducks. Score to date.	Pen Position.
Raye, Miss B	22	540	14	167	707	32
Johnson, Mrs. H. B.	36	481	2	167	648	34
Heseltine, C. G.	23	565	—	152	717	29
Stevenson, A F. M.	64	572	—	157	729	28
Hines, Mrs L.	7	596	—	146	742	27
Miles & Farr	39	705	—	158	863	18
Wyndham Malet. Mrs.	19	599	—	110	709	31

LARGE FLOCK SECTION.

RUNNERS.

Owner.	Duck No. 1	Duck No. 2	Duck No. 3	Duck No. 4	Duck No. 5	Pen Records. Month's Score.	Pen Records. Score to Date.	Pen Position
Berney, R. H.	27	10	—	12	—	49	717	13
Partridge, W. R.	28	27	25	21	20	121	801	8
The Molassine Co.	12	20	23	13	—	68	655	18
Johnson, R. A. & A. M.	28	14	—	11	25	78	725	12
Gill, J. H.	4	8	14	—	10	36	519	20

KHAKI-CAMPBELLS.

Owner.	Duck No. 1	Duck No. 2	Duck No. 3	Duck No. 4	Duck No. 5	Pen Records. Month's Score.	Pen Records. Score to Date.	Pen Position
Long, R. A	21	23	—	4	5	53	904	3
Wyndham Malet, Mrs.	16	23	—	—	—	39	916	2
Gwynne Evans, F. & H.	3	25	8	18	24	78	876	5
Forbes, Panton, W.	—	20	—	—	5	25	1058	1
Chance & Holloy	16	21	20	—	28	85	882	4
Gibson, E. A.	—	6	—	12	11	29	527	19

BUFF ORPINGTONS.

Owner.	Duck No. 1	Duck No. 2	Duck No. 3	Duck No. 4	Duck No. 5	Pen Records. Month's Score.	Pen Records. Score to Date.	Pen Position
Caiger, Miss H. M.	—	14	—	—	—	14	684	16
Raye, Miss B.	—	14	—	—	—	14	806	7
Cochrane, W. O'G.	—	—	—	—	—	—	812	6
Heseltine, C. G.	—	—	—	—	—	—	735	11
Scott, McComb	10	—	—	—	—	10	686	15
Chittendon, C. C.	12	9	15	25	—	61	759	10
Roberts, H. & B.	2	—	—	—	—	2	660	17
Mines, Mrs. L.	—	—	—	—	21	21	706	14
Lipscomb, J. H.	28	21	2	14	21	86	787	9

"The Den," Hambrook, near Emsworth, Hants.
1st November, 1923.

Dear Sir,—Although at present I am only a small poultry farmer, I am greatly interested, and an enthusiastic reader of "Eggs," which I consider an excellent poultry magazine, worthy of great support.

I am, yours faithfully,
(Signed) A. E. RICHARDS.

On Mating a Breeding Pen.

By P. J. RICHARDSON.

As the moulting season draws near, many poultry-keepers are confronted with the problem of the choice of their future breeding pens. If the stock has been trap-nested, this will undoubtedly assist in the selection, but, on the other hand, if it has not—the individual egg production of the hens is not known—then it requires an expert breeder to estimate the true value of each hen. The flock average is of great importance in such a case, but its value is absolutely lost if the flock is bred from without drastic culling.

The time of year is now at hand when the selection of next year's breeding stock must be made, and the poultry-keeper will be well advised to carefully study the "Handling and Observation Charts," issued by the S.P.B.A.

We should like our readers to clearly understand that the value of a hen should be estimated by the quality of the chicks she will breed, and when breeding stock is being chosen this should always be borne in mind. The best results will be obtained if one's stock harmonises—that is to say, uniformity in type, performance, size, etc. The pen of hens, however, must be correctly mated otherwise all labour entailed in their selection will have been in vain.

We will assume that the stock has been fully trap-nested, the selection of the breeds is in no wise an easy task, as each hen's merits must be carefully noted, taking the precaution not to be tempted to select on records only. This is of the greatest importance, the records **alone** are but of little value. To mate a pen of birds on their trap-nest records only may be likened to mixing a mash to a standard without studying the quality of the ingredients. The cards may show the hens to be very heavy layers, but they may be nothing more. No trap-nest card can give the constitutional vigour—the breeding value of a hen.

A pen's value is in the quality of the stock that pen will breed, and therefore readers should accustom themselves to "picking out" those birds which carry the most desirable characters. Look at the bird's head. Has she a good head? What about bone? Is that fine, no coarseness? Is her back fairly long and broad? Plenty of depth in body? Tight in feather? Has she plenty of vigour and vitality, always ready for her food? Ask yourselves these questions, and if a certain hen is obviously lacking in some of these characters then discard her, boil her, roast her, do anything with her, but don't have her in your breeding pen whatever her egg record may be.

By these means the all-round quality of the stock can be maintained, and possibly improved if the breeder is thoroughly conversant with the nature c his strain.

Having selected your hens, the next step will b to find a male bird possessing favourabl characters. He should be of average size for th breed, there should be no coarseness of the heac and he should be bred from a good egg-producin hen, whose performance included large eggs as pullet. If a pullet is a layer of large eggs from th first, there is practically no risk of her laying an thing but good-sized eggs as a hen, but the r verse does not always prove so conclusive.

A hen may lay first-grade eggs as a hen, bu that does not in any way mean that she laid larg eggs as a pullet; therefore, it will be obvious t our readers that the importance of the pullet' performance as regards this factor is indeed vita There are too many pullets whose precocity w not permit them to lay good sizable egg in almo any bred-to-lay breed—these are they that w probably outstrip their more moderate sisters a regards quantity, but unless you are out f "pigeons' eggs" don't breed from them.

The male bird, then, should be bred from "Large pullet egg" producing hen, whose reco reached about 240-250 in her pullet year. The are plenty of cockerels so bred, but here aga record alone is not of the premier importance. cockerel may be bred from a 240-egg hen, b that does not prove that he will make an ide breeding sire. He may not possess that vigo and vitality that is so essential in the perfe breeder. Therefore, see that the male bird carri the characters of a good breeder together with substantial pedigree. To breed from a cocker with a very high pedigree is not to be favoured account of the **risk** of breeding pullets of lo vitality. The happy medium should be the gener rule, but we do not wish our readers to draw t conclusion never to mate on high records; pen a paper can be of no true guide as regards this, much depends upon the quality of the stock, a the skill of the breeder. We think, however, th should the novice contemplate breeding from hig record birds he should most certainly look befo he leaps.

With regard to the relationship of the birds bei mated, we should like to say that, if possible, th should be of the same original strain in order preserve the natural characters of that strai Extensive out-crossing will not improve any floc it will only result in great and wide variation the individuals, and, since it should be the a of every poultry breeder to discourage wide var tion, extensive out-crossing should be left sever alone.

On the other hand, in-breeding, in the true ser of the word, is only permissible when an exceptio opportunity occurs to fix some definitely advantag ous character, and it must be remembered that t unfavourable in addition to the favourable fact are in such a case equally inheritable.

In-breeding practised as a general system v undoubtedly lead to the ruination of a strain.

Correspondence.

GEESE FOR THE LONDON MARKET.

To the Editor of "Eggs."

Dear Mr. Newman,—As many members of the S.P.B.A. are worrying about Geese for Michaelmas, I really think the following note should come in next week's "Eggs":—

The only genuine demand for Geese on the London Market is for a pen-fed bird.

Geese which have never been penned up and fed for market bear no resemblance to those which have been so treated.

Large quantities of Geese come from Ireland, and these are all properly fed for table, but the ordinary runner bird will realise very little in comparison to these birds, which have been making from 1s. to 1s. 2d. per lb. during the past week, and I should like readers to take this opportunity of referring back to my article on "Market Reports," which was inserted in "Eggs" for the week ending July 16th.

TRAPPING RABBITS.

In your issue of the 27th August I promised to obtain some advice regarding the trapping of rabbits, in answer to an inquiry of "Forethought."

This advice I now give in the hope that it may be of use to him and others.

The usual method adopted on a large estate for catching rabbits is to snare them with wire snares.

The first procedure is to find the "runs" used by the rabbits. The second procedure is to find the time the rabbits use these "runs," rabbits being very regular in the time they come out to feed.

Having ascertained these details, you should then place the snare in the run on one of the flattened-out portions of it, which is exactly where the rabbit lands at the end of his jump (rabbits jump and do not walk), taking care to get as far away from the burrows as possible.

By the above means rabbits are quite easily snared after a little experience.

Where there are very large quantities of rabbits, keepers sometimes use long string nets in the following manner.

They wait until the rabbits have all left their burrows and gone to their feeding ground. They then quietly peg a long net down, after which they return to the place where the rabbits are feeding and create a disturbance, which causes the rabbits to immediately bolt to their burrows. The long string net being in front of their burrows they automatically run into it, and are so caught. Special nets are sold for this purpose.

The snap and ginn trap is not used, for the reasons that, in the first place, it is cruel, and in the second, a rabbit caught in one of these will set up such a screaming noise as to frighten the rabbits for a tremendous distance round.

I trust this is the information that was required.

Yours faithfully,

A. V. CLARKSON.

EXHIBITION UTILITY POULTRY.

To the Editor of "Eggs."

Dear Mr. Newman,—I quite agree with your criticism on Utility Judging.

The subject of Exhibiting Utility Poultry is one upon which sound arguments may be advanced both for and against.

Put in a nutshell, I maintain, that if we are to accept the verdict of the Show Pen as a reliable test of the degree of fecundity a pullet has inherited, or as to its suitability for the breeding pens, then we are undermining the very principles upon which the S.P.B.A. was founded, and must be maintained. The trap-nest must remain one of our principal deciding factors.

At the request of Mr. Mudie-Draper, I have written an article on the subject for the Year Book, discussing the question from all angles.

Possibly, then, some of our members will see their way clear to follow up a discussion which might prove both interesting and educative.

F. W. WAIT.

FRAUDULENT ADVERTISEMENTS.

To the Editor of "Eggs."

Dear Sir, — In a recent number of "Eggs" I note your reference to the letter received from Worcestershire, commenting on your article under the heading of "Fraudulent Advertisements."

I fail to see how your article can do any harm to poultry-breeders in Worcestershire; it should help them. Personally, I should make use of such an article by bringing it before the public more prominently, and assure them where they could obtain fair dealings.

Poultry-keepers are not getting a goodly wage for their labours at the present time, and cannot stand much swindling.

Your attitude should have the full support, *not denunciation*, of every member of the S.P.B.A. Might I add my experience in 1919. I had difficulty in getting delivery of certain goods from a firm, and was getting suspicious, when an article of warning appeared in "Eggs," which alluded to a firm dealing in these "certain goods." I at once wrote to the Editor. His reply confirmed my suspicion. Had it not been for the timely warning in "Eggs," I should have lost £120, *or 480 times my subscription to the S.P.B.A.*

I am, yours faithfully,

R. W. CASON.

MARKETING OF POULTRY AND RABBITS.

To the Editor of "Eggs."

Dear Sir,—I thought that some better pen than mine would have written you giving a good method of snaring or catching rabbits.

The method I have used in catching scores of rabbits alive, and absolutely unhurt and disfigured in any way is this:

I had some nets made of string, about 2ft. 6in. square. Round the edge of the net a strong piece of string or cord was threaded, the string coming round to the same hole at which it was begun. The two ends of the string were then knotted, and about eighteen inches of the string was left in. At the end of the string a peg was tied. Twenty or thirty holes each have one of these nets placed over them; open the net to its fullest size, then just get hold of the net in the middle, and bunch it up a bit. Lightly peg the net round the edge in one or two places, and stick the peg that is tied on the net firmly in the ground. You then require a ferret, which is hungry and is then muzzled (it must be muzzled or it would feed off the first rabbit it could get). Pop the ferret down the first hole, and it will disturb the rabbits, which will run out to the open so quickly that it hits against the net over its hole, and the force of its flight will draw the net up tight in the string and enclose the rabbit, so that it looks like a ball of fur. It is then shaken out of the net and killed by a blow on the back of its head. Replace net over the same way, and look at the other nets. When this part of the burrow is cleared move the nets lower down until you have worked the burrow out. If you have a ferret, and have not nets, put a collar on the ferret (which should be hungry), and tie a long cord to the collar. Put the ferret in the rabbits' hole unmuzzled, and wait. If the ferret does not come out in a few minutes, get a spade and dig, following the string until you get to the ferret, where you will find it has either killed the rabbit by sucking its blood, and not injuring it, or that it has several penned up in the end of the burrow.

Yours faithfully,
W. BARCROFT.

COMMUNITY POULTRY FARMING.

To the Editor of "Eggs."

Dear Sir,—In reply to Mr. Wheelwright's letter under the above heading in your issue of the 3rd inst., my letter published in your issue of January 30th of this year was written in the hope that Mr. Morison's idea of a 50,000 poultry farm might materialise on a "Community" basis, but I hold it to be absolutely essential to the successful carrying out of such a scheme that it should be started on a business basis from the beginning by a practical business man with long and successful experience of the running of a large poultry farm, and I asked Mr. Morison whether, as the originator of the 50,000 poultry farm controversy, he would be prepared to take a leading part in starting such a farm?

In your issue of February 13th Mr. Morison replied saying that the Co-operative idea appealed very strongly to him, that he would much like to have a finger in the Co-operative Poultry Farm, and asked me to get into direct communication with him, which I did, but, unfortunately, at that time Mr. Morison was unwell, and confined to his bed, and after one or two letters had passed between us, I didn't feel justified, under the circumstances, in pressing the matter any further.

If Mr. Morison has now recovered, and still feels keen about the matter, perhaps he will take the matter up again, or if his health does not permit, it is then open to anyone else, with similar qualifications, to take the lead.

There is, at the moment in the market, a very well equipped poultry farm, within 18 miles of London, *to let*, with water laid on all over the farm, and whilst it has not the acreage of the farm originally suggested, being only about 35 acres, I don't know that this is altogether a disadvantage. Egg and table poultry production are the objects, *not walking exercise*, and if the breeding stock and young birds are given good range the laying stock and the birds intended for table birds, could be kept *intensively* as on Mr. Week's farm, and a very large number in this way be kept, metaphorically speaking, within a stone's throw of the world's best market, and the farm has the advantage of being so situated that the difficulty of housing the various unit holders, which I referred to in my letter as "the fly in the ointment," would probably be in a great measure overcome.

If Mr. Morison, or, failing him, someone equally fitted, would come forward, and take the lead at once, I see no reason why the scheme should not materialise without delay.

The advantage of a comparatively small farm in such a position is that two or three might start it, and it could develop as time went on, and quite apart from its commercial possibilities, as a British School of Aviculture, it should be a great success.

"WATCHMAN."

MARKING OF FOREIGN EGGS.

To the Editor of "Eggs."

Dear Mr. Newman,—The manner in which English poultry-farmers market their eggs has frequently been disparagingly commented upon.

It has always appeared to me that the criticism was in many instances unfair, that the former was often saddled with other people's actions.

When recently speaking to an egg merchant, I was informed that he recently bought from a wholesale fruit salesman fifty cases of Lincolnshire eggs.

Upon candling these he found a large percentage of bad eggs, and ultimately he lost one pound per case on the transaction.

I should take a great deal of persuading that this was not a deliberate case of mixing with foreign produce by the egg collector, which the Merchandise Marks Act would assist to prevent. How often is the former blamed through these fraudulent practices?

F. W. WAIT.

LAYERS' CRAMP.

To the Editor of "Eggs."

Dear Sir,—I thought, perhaps, it might interest me of your more inexperienced readers to relate the llowing case:—

About a fortnight ago I had trouble with one of our nuary-hatched Light Sussex. This pen commenced lay in late July. One of the seemingly best layers, o. 6 x 1924, was found one morning completely off er legs. Although unable to move she was looking the best of health, and her comb has never lost its rightness to this day. The case was diagnosed as one f layers' cramp. Treatment as follows:—

The pullet was placed in a roomy coop with plenty f straw. No mash was given, her feed consisting ntirely of oats and greenstuff, with an occasional hange of grain to sound wheat, when this was obainable. No water was given except at exercise time. When she was taken from the pen she was allowed to rink her fill of water, to which had been added tincure of 'Nux Vomica," a dose of 15 drops. This as only allowed every other day owing to its stimuating effect on the heart. Morning and night she was aken from the coop, and held so that she would have exercise her leg muscles. Each evening the whole g from hip to toe was thoroughly massaged, using or this a little ordinary athlete's embrocation.

I now have pleasure in saying that the pullet has een returned to her pen, and cannot, after two weeks of rather elaborate, but worth-while treatment, e picked out from her sisters.

Whether she will now carry on without these disressing symptoms, has to be seen. But at all events his little item will show that treatment is worth while ven if the results are not at once apparent, as for the irst week this bird lay as dead in her coop, until one aught the bright eye.

Trusting this will be of sufficient interest to your eaders, and wishing "Eggs" the best possible.

Yours truly,
SYDNEY F. COOPER.

A WHITE WYANDOTTE HEN.

To the Editor of "Eggs."

Dear Mr. Newman,—Seeing the "Front Cover," and reading your Editorial of to-day's "Eggs," has prompted me to write particulars of a White Wyandotte hen that I purchased in December, 1922, from one of our well-known Utility Breeders (Mr. Tom Barron). Her pullet record was 257. I commenced to trap her on January 1st, 1923, and she laid me 187 during the year. I incubated 75 of her eggs during the season, starting January 18th to May 10th. I hatched out and reared 70 chickens, the remaining five were dead-in-shell, 65 pullets and five cockerels. Unfortunately for myself, I sold most of the pullets, but on reading your Editorial to-day it struck me to look up the records of this hen's daughter, which passed the L2 Test, which I had retained, and I give them herewith.

It certainly looks to me that the dam has something to do in transmitting the fecund propensity to her daughter, in this case anyway. The dam of the cockerel, to whom the bird was mated, was from a 289-egg hen:—

No. of Pullet.	Commenced to lay.	L2 Record.		Pullet Year Record.
4.	4th July, 1923	66		241
10.	25th July, 1923	53		202
23.	14th Aug., 1923	52		236
26.	18th Aug., 1923	49		228
30.	1st Sept., 1923	74		232
32.	1st Sept., 1923	45		190
35.	1st Sept., 1923	71		227
38.	6th Sept., 1923	58	to Aug., 31	212
39.	9th Sept., 1923	54	,,	200
41.	13th Sept., 1923	63	,,	248
42.	13th Sept., 1923	41	,,	200
49.	26th Sept., 1923	70	,,	211
56.	13th Oct., 1923	69	,,	234
57.	16th Oct., 1923	48	,,	185
58.	18th Oct., 1923	57	,,	189
59.	19th Oct., 1923	59	,,	222

"Cotswold Champion," the White Wyandotte hen, which laid 322 eggs in her pullet year, was entirely reared and fed on dry mash, as have all my stock, including those referred to in the letter above. As a matter of fact, I can go further than that, and say that the parents of all the birds have also been fed on dry mash.

If this should meet the eye of H. N. (Stirchley), to whom you replied last week, may I strongly advise him to join the S.P.B.A. It's the best five shillings' worth in poultry farming obtainable.

Yours faithfully,
ARTHUR LEVET.

BRITISH BLACK LEGHORN CLUB.

To the Editor of "Eggs."

Sir,—For several years there has been an outcry from breeders of Red Sussex that insufficient publicity was given to the breed, and that suitable classification was not forthcoming at any show. The Utility Red Sussex Club was formed to remedy that defect, and have arranged to have six classes put on at the Tottenham Show, to be held on October 7th and 8th. Although it is the Club Show of the Red Sussex Club, anyone may enter, although specials are confined to its members. There is a real chance to show the type of stock you keep, so it is up to all breeders, whether they agree with the club or not, to show the breed for the sake of the breed. Already, as a result of our propaganda and guaranteeing classes in different parts of the country), I have been able to place several large orders for stock, but the trouble is that the demand is greater than the supply, so I want to appeal to all breeders, now the boom is here, and the Red Sussex have come into their own, not to let the opportunity go begging, but to help forward the good work that is being done on behalf of the Red Sussex Club by joining the club. The fee is moderate, viz.: 5s. per annum. In doing so, breeders are not only helping us but themselves at the same time. Remember we have started where the Sussex Club was recommended to start 15 years ago. There is no time like the present, so join now. The Secretary's address is: The White Houses Poultry Farm, Bexley Heath, Kent.

Yours truly,
B. BIRKHEAD.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Davy, George, Bent Top Farm, Sutton in Craven, Keighley.
Hill, Mrs. C., 1, St. James Road, Harpenden, Herts.
Harridge, G. A., "The Nest," Harvey Lane, Thorpe, Norwich.
Ashworth, J., Gabbotts Farm, Withnell, Nr. Chorley, Lancs.
Kay, Basil H., Redbridge Poultry Farm, Redbridge, Southampton.
Tyers, Joseph, Gees Road, Earl-Shilton, Leicester.
Gore, Robert, Radley Farm, Hungerford, Berks.
Thompson, S. H., "Elmtrees Farm," North Fambridge, Essex.
Warner, Miss Phyllis, The Cabin, Walton-on-Thames.
Best, Albert E., 48, Harrington Road, Leytonstone, E.11.
Nussle, A., c-o Etabl. Maurel and Prom, Bathurst (Gambia).
Duncan, Jas., Rosebine Poultry Farm, Coultown of Balgonie, Markinch, Fife.
Luart, Comtesse du, Le Luart, Sarthe, France.
Pryor, H. D., Hurlingham, Nr. Whitenap Farm, Romsey, Hants.
Richards, Miss D. M., Shrublands, Hersham, Walton-on-Thames.
Thornton, R., 54, Mansell Road, Liverpool.
Moreton, W., 58, Grey Road, Walton, Liverpool.
Holland, J., 68, Walsall Road, Kings Hill, Wednesbury, Staffs.
Trude, W. H., Westcott, Talaton, Exeter.
Broughton, A., 59, Highfield Road, Levenshulme, Manchester.
Allen, A. E., "Meadowcourt," Radcliffe-on-Trent, Notts.
Lemarchand, Maj. H., M.C., Instow P. Farm, Langton Matravers, Dorset.
Corben, Frank (Poultryman), Instow P. Farm, Langton Matravers, Dorset.
Douglas, L.D.S., R.C.S. (Eng.), W. S. L., "Aurland," Latimer Road, St. Helens, I.O.W.
Sinclair, Robt. N., "Furzedown," Highfield Road, Southampton, Hants.
Rowsell, T. W., The Springs, South Petherton, Somerset.
Auty, W. R., School House, Waresley, Sandy, Beds.
Procter, Frank B., 94, Ellison Road, Streatham, S.W.16.
Livett, B. T., 13, Wandle Bank, S. Wimbledon, S.W.19.
Evans, F. C., Heatherbank, Alderholt, Nr. Salisbury.
Millbank, F. T., Healthfield Poultry Farm, Hatfield Heath, Harlow, Essex.
Beeson, W. H., The Bungalow, Mill Road, Nayland, Chelmsford, Essex.
Bellis, Edwin K., Churton Hall, Churton, Nr. Chester.
Dobbie, J., and Son, 24, Elbe Street, Leith, Scotland.
Lloyd, C. Morton, "Stubbs" P. Farm, Cranleigh, Surrey.
Floyd, W. H., Merchant and Food Specialist, St. Martin's Lane, King's Lynn.
Carter, C. F., 55, Endymion Road, Brixton Hill, S.W.2.
Elliott, John H., White Gates, Milford Road, New Milton, Hants.
Linge, Elias, 80, Forest West Drive, Leytonstone, E.11.

KEIGHLEY BRANCH OF THE S.P.B.A.

A well-attended meeting of the Keighley and District Branch of the S.P.B.A. was held in the Temperance Hall, Keighley, on September 17th. A letter was read from the President, Mr. Frank Snowden, to the effect that he would be unable to attend, as he had to be present at a special committee meeting of the Yorkshire Federation Laying Test. Mr. H. Reynard, therefore, presided. Minutes of previous monthly meeting were read, confirmed, and signed. Stewards and M.C.'s were elected for the first of a series of whist drives, which will be held during the winter in aid of the show. It was announced that the Yorkshire Federation of Poultry Societies had resolved at a committee meeting, held on September 4th, that delegates attending Council meetings must hand to the Secretary of their society a written report of all such meetings, to be read at their next monthly meeting. As the Secretary was also absent at the Special Committee of th Federation Laying Test, there was no one present t explain why the Federation had come to this decision It was, therefore, resolved that "this matter lie o the table."

(Continued at Foot of Next Column.)

(Signed). A. WILSON, Hon. Sec.

What our Readers think of "Eggs."

Ash View, Heaton Grove, Bradford.
3-1-2

Dear Sir,—I might say that I have found "Eggs" to be th most helpful paper I have ever seen, and only wish I had take it sooner, as I should have started on quite different lines if had done so."

Yours faithfully,
(Signed) G. H. GRIFFITHS.

42, Cherry Street, Birmingham.
18th October, 1923.

Dear Sir,—I may say I am a regular reader of "Eggs," whic I consider is the best paper published on Poultry matters.

Yours faithfully,
(Signed) A. B. BRADLEY.

Arcadia, Gaoomon's Lane, Watford.
13th December, 1923.

Dear Sir,—At the same time I desire to take this opportunit of expressing my great appreciation of "Eggs," and the man useful articles, formulae, etc., which appear in its pages fro week to week. I am sure, as a poultry paper, it stands o above anything that has ever come to my notice, and it always a matter of astonishment and regret to me that ever person interested in poultry-keeping is not a regular reader. think this may be largely due to the fact that there are man people who do not know that your excellent paper exists, and you care to send me down a parcel of old numbers, I shall b pleased to distribute these in the neighbourhood, and do what can to interest others, and so increase the circulation of wha I consider to be the best periodical published on fowls an kindred matters.

Wishing you increased prosperity for the Association an "Eggs."

Yours faithfully,
(Signed) H. W. SMALLMAN.

Thaba 'Nohu, Naze Park, Walton-on-Naze, Essex.
1st November, 1923.

Dear Sir,—I have recently been recommended your pape "Eggs," by a poultry farmer, and I must honestly say th that there is no other poultry paper which is as good as an respect, and which gives such sound advice.

Yours faithfully,
(Signed) JOHN HERRINGTON.

Galen House, Nightingale Road, Guildford.
30th August, 1923.

Dear Mr. Newman,—I have six White Leghorn hens, an have profited by the advice given in "Eggs" to a very gratifyin extent.

Yours truly,
(Signed) E. M. WAIND.

Cumrew, Heads Hook, Carlisle.
21st June, 1924.

Dear Sir,—In conclusion, may I take this opportunity expressing my appreciation of "Eggs" with hearty congratul tions to the Editor.

Yours faithfully,
(Signed) J. T. POYNTER.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, SEPTEMBER 19th, 1924.

GRAIN AND FEEDING STUFFS.—Good milling samples of English wheat are not plentiful as yet, and the bulk of the supplies are taken for poultry feeding purposes at an average of about 12s. per cwt. Good samples are in strong request for seed, and make up to about 14s. 6d. per cwt. Fairly large quantities of malting barley are being marketed; finest samples are scarce and in exceptional cases make about 25s. per cwt., while both commoner malting sorts and grinding descriptions are in good request and dearer. Home-grown oats are mostly in poor condition but meet a firm trade and prices are higher, black oats averaging 9s. 2d. per cwt. against 8s. 9d. last week.

All descriptions of imported cereals are in active demand and dearer. As compared with last year, No. 1 Manitoba wheat at 14s. 6d. per cwt. shows a rise of 2s. 11d., No. 3 Canada Western barley, at 13s. per cwt., a rise of 4s. 11d., No. 2 Canada Western oats at 11s. 7d., a rise of 1s. 9d., and Argentine maize at 10s. 2d., a rise of 1s. 6d.

Milling offals are in fair demand and prices are very firm, middlings averaging £10 7s. 6d. per ton and bran £8 2s. 6d. per ton, 37s. 6d. and 41s. 6d. respectively more than a year ago. Meals are also advancing steadily. Oilcakes are quiet but prices are firmly held. On the whole the market for feeding stuffs generally is very strong, and further advances are anticipated.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s; Hull, £7 12s; Liverpool, £8; London, £8 5s. Broad Bran: Hull, £9 2s; London, £9 2s. Middlings—Fine (Imported): London, £10 12s; Coarse (British): Bristol, £11; Hull, £10 10s; Liverpool, £10; London, £10. Pollards (Imported): Bristol, £9; Hull, £8 5s; Liverpool, £8 10s; London, £8 10s. Rice Bran: Bristol, £8 15s; Liverpool, £8 12s. MEAL.—Barley Meal: Bristol, £13 10s; Hull, £13 12s; London, £14 5s. Maize Meal: Bristol, £11 15s; Hull, £11 5s; Liverpool, £11 2s; London, £12. Maize Germ Meal: Bristol, £11 17s; Hull, £11 15s; London, £11 15s. Maize Gluten Feed: Bristol, £11 17s; London, £10 10s.

EGGS AND DEAD POULTRY.

Most grades of eggs sell at rather higher rates, demand being good and supplies hardly so plentiful. Dressed poultry shows little change, although more activity is reported in London.

Week-end Prices—Eggs (per 120): British, 22s 0d, 20s 0d; Irish, 19s 0d, 18s 6d; Danish, 20s 6d, 19s 0d; Dutch, 23s 0d, 20s 0d; Lithuanian, 15s 6d, 13s 6d; Belgian, 20s 0d, 19s 0d; Italian, 18s 0d, 17s 0d; Roumanian, 14s 6d, 13s 6d; Russian, 13s 0d, 10s 6d.

Dead Poultry (per lb.): Fowls—Surrey, 1s 9d, 1s 5d; Irish, 1s 4d, 1s 1d; Others, 1s 6d, 1s 2d. Ducks, 1s 2d, 1s 0d. Geese, 1s 3d, 1s 0d.

EGGS.

Per Doz.—Ashford: First, 2s 5d; Second, 2s 3d. Birmingham: First, 2s 1¼d; Second, 1s 10¾d. Bridgwater: First, 2s 3d. Carlisle: First, 2s 6d. Chelmsford: First, 2s 6d; Second, 2s 3d. Denbigh: First, 2s 3d; Second, 2s 2d. Derby: First, 2s 1d. Dorchester: First, 2s 2d. Exeter: First, 2s 4d. Hereford: First, 2s 0d. Hull: First, 2s 0d. Ipswich: First, 2s 3d; Second, 2s 0d. King's Lynn: First, 2s 2d; Second, 2s 0d. Lincoln: First, 2s 0d. Llandilo: First, 2s 0d. Newport (Mon.): First, 2s 1d; Second, 2s 0d. Norwich: First, 2s 1½d. Oswestry: First, 2s 3d; Second, 2s 2d. Penzance: First, 1s 9d; Second, 1s 8d. St. Ives: First, 2s 3½d; Second, 2s 2½d. Salisbury: First, 2s 4d; Second, 2s 2d. Shrewsbury: First, 2s 3d; Second, 2s 1d. Skipton: First, 2s 1d. Truro: First, 1s 10d; Second, 1s 9d. York: First, 2s 5d; Second, 2s 4d.

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, September 24th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

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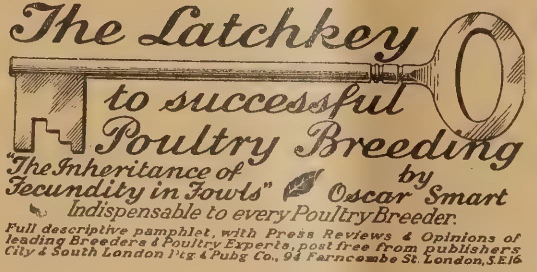

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E G

Wednesday, October 1st, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN

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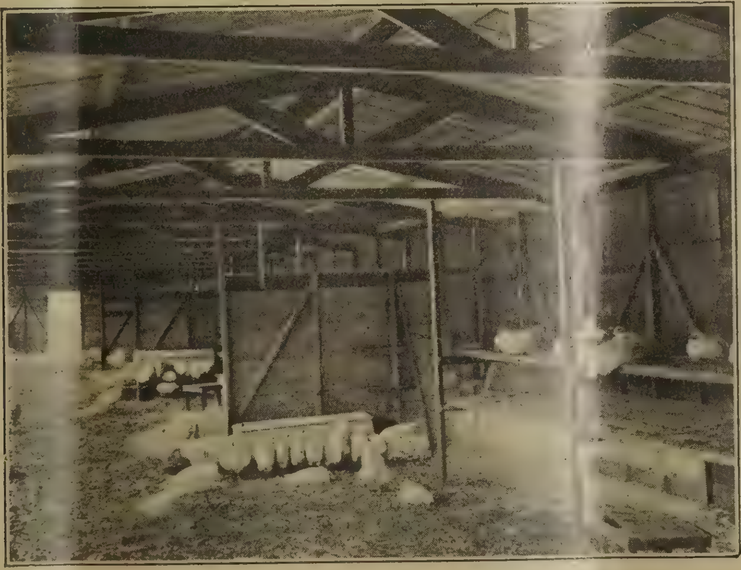

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 1st, 1924.

Editorial.

THE INTENSIVE SYSTEM.

In a recent issue of "Eggs" reference was made to the possibility of a revival of interest in the intensive system of poultry-keeping. There are many of our readers who will remember the excitement occasioned by its introduction here some ten or twelve years ago, the enthusiasm with which it was taken up, and the many and grievous failures which followed. Those who predicted failure were in the happy position of being able to say, "I told you so," which to some people is one of the happiest moments of their lives; but they based their prediction solely on the ground of "unnatural conditions," and were unable to give a specific reason as to why failure should follow. Admittedly conditions are unnatural, but there is very little that is natural in the conditions under which we are keeping our hens to-day. The same objection was raised when the incubator was introduced, and there will always be those who will predict evil of anything new, or condemn anything which is outside their experience.

We can say, then, that the intensive system of poultry-keeping in this country has not been a success; in the main it has been a decided failure. No one has attempted to explain why it failed. We have accepted the fact, and accepted the excuse—unnatural conditions—shaken our heads, looked preternaturally wise, and forgotten or tried to forget it.

Our readers may ask if there is any good reason why we should not continue to forget it, is there anything to be gained by reviving it?

We think there is, for the following reasons:—In the first place one does not like to acknowledge failure, more especially when no adequate explanation of that failure has been found (we cannot accept "unnatural conditions"); in the second, the success or failure of a rearing season depends too much on the vagaries of our climate. In cold damp springs, such as we have experienced during the past two years, disease is rife, and there are few breeders who can look back upon them with any feeling of satisfaction. We are not suggesting that the intensive system of poultry-keeping is going to be a solution of this problem; indeed, there are many breeders who would be inclined to argue that the fact that we have had to keep chicks closely confined, owing to adverse climatic conditions, has aggravated the problem—and this in part is true. But there is another side to the question which is surely worth discussion, and if no good arises, no harm can come from considering it, and possibly some experimental work may be undertaken which would prove of real value.

Let us deal first with chick mortality. Capt. Leeney told us in the spring that out of 1,500 chicks examined, nearly 60 per cent. died from pneumonia; another well-known authority confirmed this. There have been heavy losses through leg weakness, not to mention B.W.D. and coccidiosis.

Climatic conditions are NOT in the main the causes of these heavy losses from pneumonia—a fair percentage are due to exposure, or to floor draughts—but by far the greater number are undoubtedly due to the foul atmosphere in the brooders or under the hovers, or to the lack of sufficient oxygen. The same remark most certainly applies to leg weakness. The reference to Bacillary White Diarrhoea is made because there is a growing conviction that all birds carry the **Bacillus Pullorum,** and that it only becomes active when the chicks' powers of resistance are lowered from any cause. On this point we express no opinion; it was raised at the Harper-Adams' conference, and, as before stated, the experts were unable to give a definite answer—the possibility exists.

It may be justly argued that we have put up a very good case **against** the intensive system. That is perfectly true, but it is necessary, if we are to investigate it, to know both sides of the question.

If we deal first with losses from pneumonia, there does not appear to be much room for doubt that 80 per cent. of the losses are due to the foul atmosphere of the brooders or hovers; or, to put it more simply, there is insufficient oxygen for the healthy development of the chick. Here is an undoubted and admitted evil. Are we so lacking in ingenuity that we cannot overcome this difficulty, or at least mitigate it? It should not be beyond the wit of man to devise the remedy, if we concentrated on it. In an early issue of "Eggs" we hope to publish an important article on the subject, not only the proper ventilation of brooders, but of houses, by one who possesses every qualification for writing it. There does not seem much room for doubt that leg weakness arises in the main from the same cause as pneumonia, and that the remedy will be the same in both cases—**more oxygen,** floor ventilation and light. If the theory as to B.W.D. is correct—that all chicks are carriers, that the bacilli only become active when the resistant powers of the chick are lowered from any cause—then these improved conditions should do much to mitigate that scourge.

Turning now to the adult stock, and first the breeding stock. "Natural" conditions are always urged as a means of hardening them, so that they may breed vigorous progeny, but in nature a bird does not breed out of season, neither does it lay 200 or more eggs in a year, neither is it sheltered from the cold and damp at night. What is to be gained by allowing the breeders to range over the sodden soil, exposed to cutting winds? What virtue is there in the grass during the winter months? Insect life is not abundant, and again, it should not beyond the wit of man to devise a house in which there should be an ample supply of air and light. We cannot expect strongly fertilised eggs from birds which are exposed to bitter winds, and the results should certainly be better in a well-designed and well-constructed house.

Turning to the laying stock, do not the same remarks apply? No one who is acquainted with a commercial egg farm, where 400 birds are run to the acre, can fail to observe how little the birds range, or how they congregate in the sun, when it appears, in that patch of filth immediately in front of the house, and drink from the puddles of water fouled by the excreta. There is nothing more curious to observe, than the trouble we take to keep the water troughs cleaned and disinfected, and how little we remark on that fact that the birds are drinking from those filthy puddles on that foul and filthy patch, or remark that the birds are squatting in this filth amidst the stench which follows sunshine after a shower of rain. Surely this must be a hot-bed of disease, and one which is rarely considered when we are discussing its prevention.

What, then, is to be gained by this semi-intensive system as it is practised on so many farms in this country? Is there any real benefit to be derived from it when 400 birds are running on half an acre of ground for six months of the year? If so, what is it?

We submit, then, that the intensive system has not had a fair trial, that it has been condemned without any real investigation of the cause of failure, and that many of the evils attributed to it might be averted now that we know what caused them; that the chief trouble was due to the design of the houses being faulty, and that it is possible to construct a house, which should be at once airy, light, and well ventilated; that concentration on the brooding system should enable us to evolve a brooder and a house which would result in our being able to rear stock from the shell to healthy and productive maturity intensively; and that our experiences of what is known as the semi-intensive system are not so wholly satisfactory as to warrant our neglecting to explore the possibilities of the intensive system.

Modern Poultry Feeding.

By TOM NEWMAN.

It seems to be hardly understood that a wide ration—that is to say, one with a ratio of 1 to 5—is far better from the point of view of egg production than is a narrow one of, say, 1 to 3; and also, as mentioned last week, there is every evidence that if the fat content of the total ration is fairly high, we get more hatchable eggs and more healthy and vigorous chicks. But in most of the formulas submitted to me for criticism I find the tendency is to use a very narrow ration, under the impression that it will produce more eggs, and, as I have so frequently said before, very many of my readers are inclined to increase the animal protein in the mash if they want more eggs.

To be a good feeder the first necessity is to recognise that the birds themselves are your surest guide as to the composition of your mash—that is to say, whether your ration is too wide or too narrow.

Now take the following:—A member writes that his results have not been satisfactory, so he proposes the following formula:—One bran, two middlings, half maize gluten feed, half ground oats, half clover meal, quarter dried yeast, and half fish meal. The protein content here is very high, and the fat content is low. This is given in conjunction with two parts oats and one wheat. Naturally it gave very unsatisfactory results; the eggs were small, and inclined to be thin-shelled. It would have been much better had maize meal been used in place of the gluten feed, another pound of middlings added and the ground oats brought up to 1 lb. Further, it would have been a much cheaper mash.

Now let us consider the alternative mash proposed:—1 lb. bran, 2 middlings, half ground oats, half alfalfa meal, half malt culms, half dried yeast, and half fish meal.

There is no object in including the malt culms with the dried yeast. Further, the bulk is too great, and there is a deficiency of fats. The albuminoid ratios of both these formulas have been very carefully worked out, and it once more indicates how very badly we might feed even with a total ratio of one to four or five. One cannot sufficiently emphasise the importance of regulating the feeding by the condition of the birds, and an experienced feeder should almost be able to do this without handling.

Here is another example of feeding, showing how necessary it is to be able to appreciate the comparative value of food stuffs. A lady writes from Devonshire:—

> "My Wyandotte hens have laid remarkably well, but the shells are weak and the yolks very palle."

Her feeding has been as follows:—Morning mash: 2 ozs. bran, scalded, **or** biscuit meal, 3 ozs. sharps, to dry off, and 3 ozs. of meat meal, making about 2 ozs. of feed, when weighed dry, to each hen, and an evening meal of 2 ozs. good wheat, with an occasional change to kibbled maize. All the birds got the biscuit meal for one fortnight and the bran for one month. This was because of the fear of setting up irritation by too long a continued use of bran. The question asked was, if the pale yolks indicated a deficiency of fat, how could it be supplied without inducing surplus internal layers of fat? Did the internal fat indicate too much food?

We all know the tendency of old hens to put on fat, but the curious thing here is that these birds have laid so well on a mash which is very deficient in fats, and the only explanation is that, being hens, they had accumulated body fat of which they were able to make use in the formation of yolks. There is very little fear of a laying hen putting on too much body fat, especially if she is getting sufficient exercise.

Scalded bran is a laxative, and its continued use is likely to cause serious trouble if fed in such a high proportion of the mash as this has been. Of course, as a food it has a totally different value to bran, therefore the substitution is surprising.

The pale yolks were due to the absence of colouring matter. A much better formula would have been:—2 ozs. bran, 4 ozs. maize meal, 8 ozs. sharps, and 2 ozs. of meat meal, with a grain ration of one part good white oats, one wheat, and two of kibbled maize. With such a mash as this there would have been no pale yolks, and if the birds had been kept sufficiently active the shells would not have been weak.

With over-fat hens we always get thin-shelled eggs. The cause of these birds getting in an over-fat condition was that they had not sufficient exercise, and it would have been much better, too, to have reversed the feeding, giving the mash in the evening and the grain in the scratching litter in the morning.

A reader writes :—

"I have been feeding my White Bresse pullets on the dry mash mixture which was used in the experimental feeding at Wellingham, namely: 45 per cent. white flour middlings, 20 per cent. broad bran, 10 per cent. S.G.O., 10 per cent. rice meal, 5 per cent. soya bean meal, 5 per cent. dried milk, and 5 per cent. dried yeast. The pullets are well grown now, and I wonder whether I should continue with the ration or could you recommend another."

Now I think this could be modified, as it is intended to feed for egg production, by reducing the white flour middlings to 40 per cent., omitting the dried yeast, and replacing the dried milk with 5 per cent. meat and bone meal. This would make the mash cheaper, too. As an alternative for rice meal, maize meal could be used, as a change it will have a good effect. Also, it is most important that the quality of the rice meal should be of the best, as this often contains a very high percentage of husk, which is highly indigestible. Fish meal

(Continued at Foot of Next Column.)

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

INFECTION OF THE EMBRYO.

A member writes asking if there really is a possibility of the embryo becoming infected with disease through the shell of the egg. He states positively that he does not believe it possible, and says that even if bacteria could pass through the shell, he does not see how chick could be infected, as the tough shell membrane would prevent it. He argues that when infection takes place in the incubator, it is not through the egg-shell, but follows after the chick is hatched, and adds: "Nothing will convince me otherwise."

One wonders why, if he is not to be convinced, he asks the question. At any rate, I am sure my answer will not cause him to change a mind so thoroughly made up, for I cannot pretend to write with any authority on this subject. All I can say is that investigators have found that organisms do pass through the shell of the egg during the process of incubation, and more readily through the shells of eggs in incubators than through those under hens. The possible explanation of this is that the thin film of oil deposited on the egg through the contact with the hen's feathers, may prevent the entrance of the organism. As to whether they can penetrate the shell membrane, well look at it in this way: The shell is said to furnish 80 per cent. of the lime required to build up the skeleton of the chick. What chemical action takes place to permit this to pass through the membrane? I am afraid I must leave it at this, perhaps some of our scientific readers may be able to supply the required information.

COLOUR OF YOLK.

It is singular that in a year when there has been such an abundance of green food, that so many letters have been received complaining of pale yolks, as when there is such a plentiful supply, these complaints, are, as a rule, few and far between. Where wheat and oats are the sole grain, and are fed heavily, usually you will get a pale yolk. If, on the contrary, maize forms the greater part of the grain feed of the layer, the colour of the yolk is good. There seem to be individuals, however, who habitually lay pale yolked eggs, and this would appear to be constitutional. If birds have free

MODERN POULTRY FEEDING.—Continued.

could be used in place of meat and bone meal, dried yeast replace soya bean meal; ringing the changes in this fashion will all help to stimulate the appetite and keep the birds in condition, and they do not increase the cost.

(To be Continued.)

access to acorns the yolk will become very dark in colour, and not very appetising to look at. If green lucerne is fed in great quantities, it will cause a greenish coloured yolk. The best coloured yolk I ever saw was on a farm where the birds had free access to a mangold heap. It will be remembered that Dr. Plimmer fed birds experimentally on rice, milk, and oatmeal, which laid eggs with a pure white yolk.

THE BUFF ORPINGTON.

I have a letter from South Africa this week, in which the writer asks as to the position of the Buff Orpington with utility breeders, and says that a friend of his has told him that 15 years ago they were the most popular breed in the country, and did well in the laying competitions. As a utility breed, I am afraid that it is now a back number, and although there were signs of a revival three or four years ago, it was only temporary. As my correspondent says, it did well in the laying competitions in the early days, but it was one of the breeds killed by the fancier. I can remember when the entries at the Dairy Show and the Palace exceeded those of any other breed, but the White Wyandotte usurped its place, and each year has seen a decrease in the number exhibited. When the Wyandotte and the Leghorn began to put up such wonderful records in the laying tests, and the fancier bred the Buff for size and feather, and departed entirely from type, its doom was sealed. Yet, I believe I am correct in saying that it holds the record for the highest number of eggs laid by an individual bird in any test.

THE INHERITANCE OF FECUNDITY.

A member, who desires to remain anonymous, says that he has been very interested in the recent articles on the above subject, but he thinks my theory is entirely refuted by an experiment in which four lots of common hens were mated to cockerels from highly fecund dams, and in every case the flock average of the progeny was higher than that of the dams. Unfortunately my correspondent cannot give me any particulars of this experiment, but for it to have been of any real value the reverse mating should have been made. It does not, I think, refute my theory, because that was that the full expression of fecundity might be inhibited by the physical constitution, and in this case the progeny would partake of the physical constitution of the highly fecund sire, and the common hen, and their production would be controlled by the degree in which they inherited either. We have known, of course, all along that males from highly fecund hens mated to common hens, will appreciably raise the flock average, but it is a pity we cannot get further details of this experiment. I do not know to what he is referring. While on this subject, here is a question which occasionally comes to hand. A man crosses (for the sake of argument) some Buff Orpington hens with a White Leghorn male of a high record dam. The pullets give a much higher flock average than the dams, and he thinks of breeding from them, but is told that a second cross is a great mistake. What shall he do? He would like to mate them to a Buff Orpington male this time, or shall he scrap them? This wants a little careful thinking out, because we have been told for so many weary years that a second cross is a mistake, and what I am going to say will no doubt be called heresy by most of my readers, but, never mind, when you have proved me wrong it will only be another theory upset, and it all helps our education. In the old days the first cross almost invariably gave progeny which were better producers than their dams, for the simple reason that the latter were generally so bad that they couldn't be any worse, and a cross generally led to some improvement; but, with the second cross, the "pull of the race" was in evidence, that as always, being downward, the progeny were no better than the original birds. Now, if you begin with common hens, mate them to the son of a highly fecund dam, there is an immediate improvement in the production of the progeny, and, provided these are suitably mated, there is no reason why the second cross should not show still further improvement, provided always, of course, you mate to the sons of highly fecund dams.

NATIONAL POULTRY COUNCIL.

The following sums have been received in response to Mr. J. G. Kitson, President of the S.P.B.A.'s appeal for funds for the National Poultry Council, which appeared in our issue of September 17th.

The following is an extract from Mr. Kitson's letter:

> "What is wanted to alleviate this anxiety is a much larger list of patrons subscribing a minimum of £2 2s. per annum. If that list were raised to 400 or 500 patrons, and an income of £1,000 a year were assured, the activities of the Council could be extended.
>
> Such an increase of patrons should surely be possible when the extent of the poultry industry is considered, and as it is indicated by the fact that the S.P.B.A. has a present membership of over 6,000, and the numbers are steadily increasing."

J. G. Kitson, Esq.	£2	2	0
E. C. B. Boucher, Esq. ...	£4	4	0
Miss N. B. Maddison	£2	2	0
Miss A. L. Whitbread ...	£2	2	0

OUR SCOPE.

From time to time I have given examples of the world-wide influence of the S.P.B.A. Surely it is a proud record? During the last week we have received letters from Chili, South Australia, Ceylon, several different parts of India, Canada, United States, Rhodesia, South Africa, Egypt, and nearly every country on the Continent. This is a very wonderful record for a society such as the S.P.B.A., which began in such a small way, and has now world-wide reputation, gained solely by the good work it has done.

On Breeding.

By G. C. HESELTINE.

In spite of the great progress in poultry and duck culture during recent years, and in spite of the scientific papers which have been published and repeated in the poultry press, there is probably less science and more bad breeding in the poultry world than there has been during the past generation. For there is a considerable amount of truth in the saying that "a little knowledge is a dangerous thing," and perhaps never more than when it is applied to a field of activity such as poultry culture in a stage of rapid expansion.

During such a stage many who are completely ignorant of the subject come with a keen desire for knowledge. It is almost impossible for these enthusiastic novices to discriminate, in the plethora of experts with which we are blest, between the good and the bad. For the bad are always plausible enough, often sincere enough—their fault lies not in themselves so much as in the quality of their knowledge. For many of them are unfitted by training and education to interpret the work of the scientists, and for the same reason they are also incapable of drawing a conclusion. Their only method of approach to a conclusion is by a jump.

These unsafe guides either misunderstand the investigator and misinterpret him (as so many have done in the case of Dr. Raymond Pearl and his work on the inheritance of fecundity) or they give up the attempt to understand him and jump to conclusions of their own, conclusions sometimes almost groundless and sometimes on the strength of a half knowledge of half the facts—which is even worse. There is another class of pseudo-expert, who takes interesting bits of another man's work and sets himself up as the originator of a new theory on the strength of it.

An "expert" who takes a few portions of the true scientist's work, half understands them and misinterprets them through ignorance, is more dangerous than the one who merely boosts himself and claims to know all about something from his own experience. For the former gains an impressive glibness and plausibility which cannot easily be detected at first sight, whilst the latter is generally transparent to the observant, and in any case only expects to be taken at his face value.

Thus when we come to the subject of breeding the first thing to do is to disentangle ourselves from the mass of pseudo-science which has accumulated round it. We must examine the credentials, as it were, of all those who claim to speak with knowledge. Wherever possible we should read carefully the work of those who have been engaged in actual research at responsible institutions, and we must assure ourselves before following independent workers that they are really capable of engaging in the work with a sufficient knowledge, ability, and equipment to give a fair chance of reasonable accuracy in their conclusions.

The practical man, unless he is also something of a scientist, is a very dangerous guide. Many "practical" men can do things well, but few can give the how and the why of the process correctly. They can and do achieve excellent results in breeding without what they would term scientific knowledge. Actually they must follow all the laws of breeding, and even the principles advocated by scientists, but they do so as a rule in a very circuitous way, and may waste much time and stock in achieving the desired result, though the result may indeed be admirable.

Lest I should merit inclusion amongst those good and well-meaning people to whom I have so far been so unkind, I will say at once that it is not my object in these particular articles to give the how and the why or to lay down rules, but to treat of the commonsense of the subject. A practical and commonsense approach to the subject will save us from many pitfalls. All the technical knowledge in the world is nothing more than a snare and a delusion without the ability to accept it at its true value and realise its limitations.

If I may seem to insist much on the obvious, I would ask my readers' indulgence on the grounds that such insistence at least errs on the side of clarity, and that it is the obvious which is so often missed.

In the first place, it must be borne in mind that all breeding is governed by definite laws, some as yet unknown or imperfectly understood. Any mating we make will give a result in obedience to those laws. Since this is so it follows that we shall reap what we sow. Apart from relatively uncommon occurrences, such as cases of atavism, mutations, and the like, we get out of any mating, sooner or later, what we have put in. This applies to inherited characters only. The distinction between these and characters which are not transmitted is an important one, which will be dealt with later.

It follows from the above, which is a fact well-known to practical breeders, that it is bad breeding to put into any mating a character which is particularly undesirable or difficult to eradicate. Many novices will persist in mating birds with serious defects in the hope of getting something better. The usual remark in excuse is, "You never know, it may turn out better than you expect." This is not breeding, it is gambling, and experience has given ample proof that it is very unprofitable gambling.

This does not mean to say that it is impossible to get out of a mating better than you put in. The object of every good mating is to do this, but to stand a reasonable chance of success the mating must be on a definite plan, and it must be made in the light of knowledge of the ancestry of the stock and the mode of inheritance of the characters with which you are chiefly concerned.

(To be continued.)

Goat-keeping & Poultry.

By Mrs. EPPS.

ARTICLE VII.—REARING KIDS.

Kid-rearing presents few difficulties provided ordinary commonsense is used. The present position of goat-keeping in this country is so unsatisfactory that I do not consider it sound to advise those who are not thoroughly "inside" the goat world to rear kids. The demand for stock is not steady, prices are very low, and to rear kids in the hope of making a little money is very speculative. However, after one has kept a goat or so for a few years one is sure to succumb to the temptation, so a few hints on rearing may be of use here.

Do not attempt to rear kids from any but perfectly sound stock. Any animal that is known to have any constitutional defect, or is a poor milker, or remains only a short time in milk, is over or under-sized, should not be used as breeding stock.

One hears a good deal of talk about the sire being half the herd, but it must not be forgotten that the dam is the other half.

A point of some importance is to rear kids that are born early in the year, partly in order that they may do well and partly that they may be mated in the same year that they are born. Kids born after May do not make such good growth as the earlier ones, growth after cold weather sets in being very slow indeed, and at a year old a late-born kid would probably be no nearer to full growth than, say, a February-born kid at six or seven months.

A goat usually has two or three kids at a birth, and when selecting which of the family shall be the one to rear, it is well to choose the vigorous rather than the large.

Hand-rearing is usually recommended instead of leaving the kid with its mother, the idea being that if the kid is bottle-fed it can very soon be put on to milk substitutes instead of its mother's milk, and thus an economy can be made. This course is nearly always advocated by breeders, who consider that a kid should be bottle-fed for at least six months. I myself consider that this course can be much improved upon, both from the point of view of the kid's requirements and of economy. I think three months is ample time for a kid to have milk, provided that it has goat's milk and not calf meal or gruel. Long before this time has elapsed a kid will be eating grass, hay and other vegetation, and should be allowed plenty of it. Cake, oats, etc., should not be given to a kid—it is not only unnecessary, but may have very harmful consequences. I am aware that my views on this point are very unorthodox, breeders of exhibition stock not only using cake and other concentrated foods in rearing kids, but even giving fish meal, Glaxo, Virol, and goodness knows what.

(Continued at Foot of Column on Next Page).

Turkeys.

THE BREEDING PEN.

By BERNARD REDDAWAY, M.S.P.B.A.

The breeding house should be placed, facing south, or south-east, at the top of a slope; if this is not possible, the level ground will do very well, but on no account must it be erected in a hollow.

The run should be as spacious as is practicable. A good plan is to allow the breeding birds to roam over the land which will, later in the season, be occupied by the young birds.

The stock birds must on no account be allowed to become over-fat, because in the hen an excess of fat causes the chicken to be weak, the eggs to be few and small, and makes her likely to become egg-bound; and in the cock it causes infertility, and, as in the case of the hen, weak chicken and bad hatches.

A good diet to feed them on is a mash in the morning consisting of 60 per cent. sharps, 12 per cent. meat meal (only the very best grade of meat meal should be used), and 28 per cent. of the finest freshly-ground S.G.O.; a little yeast or maize gluten meal can be added at the discretion of the breeder. The meat meal must be scalded, and the whole mash should be mixed over night, and feed in a crumbly state; there is nothing worse for them than sloppily mixed meal. In the evening wheat should be fed, some maize, oats or peas can be given as well if desired.

Never allow the birds to be without grit of a good size, green food, and fresh water. It is not possible to keep the feeding and drinking pans too clean, they should be scalded out every day in the hot weather, every other day when it is cool.

The selection of the turkeys to put into the breeding pen is about the most important part of their keeping; the health and stamina of the chicken depends largely upon the health and condition of their parents. A bad mistake in the selection of the stock will mean a bad season, and very probably an actual loss both of money and reputation.

The pen should consist of six hens, which must be over eighteen months of age. It is absolutely impossible to breed really strong chicks unless the parents are fully developed; and one cock. It is possible to run more or fewer hens to the cock, but six is a very good number, as fewer tend to repress him, and a larger number tend to put a great and unnecessary strain upon him.

When selecting the stock hens, take only those which have always done well from birth; it is a good idea to mark the young growing birds which are well and healthy, as any weakness that there may be usually comes out in the growing stage, and who do not show any signs of bad liver, or any other complaint. They should be of a good size, not over-large, and have all the proper breed characteristics.

(Continued at Foot of Column on Next Page).

Diseases of Poultry.

By H. LEENEY AND C. G. SAUNDERS, M.R.C.V.S.

BIOLOGIC METHODS OF DEALING WITH DISEASE.

The frequent allusions to the use or contra-use of bacterial vaccines and serums for the prevention and cure of poultry diseases during the last twelve months or so have suggested the necessity of defining the position of these biologic products, both as to their real and commercial value. Like all innovations, not only in medicine but in the arts, biologic products have suffered both from the sceptic and the enthusiast; the former is against anything new, on principle, and the less accurate his knowledge, the greater his antagonism; the latter, very often no better informed than the sceptic, allows his judgment to be ruled by his enthusiasm. Consequently the birth of a "new thing" is difficult and attended with misunderstandings and often recriminations. Laying all prejudice aside, let us first of all consider what a vaccine or a serum is, its method of preparation and its mode of action, and then see if the use of one or both is commercially possible. Unfortunately the term vaccine, which, strictly speaking, implies a preparation of living disease producing germs, has also been applied, though wrongly so, to preparations containing dead germs only, and thus at the start confusion arises, which can be avoided if the correct name of bacterin is given to the dead cultures. Then again, both bacterins and vaccines are often confused with serums, which, as we shall see, are totally different both in their preparation and mode of action. The sole object of these bacterial products is to raise resistance and to produce immunity to disease, either before or after the subject has become infected, but here a digression is necessary to discuss briefly what immunity means. Immunity is the power to resist and overcome disease, and it is upon this power that the termination of an infectious disease depends, so that the production of this condition is the goal to be attained, both in prevention and in treatment. Immunity may be natural or acquired, the natural being racial or hereditary, as, for example, cattle are immune to glanders, Algerian sheep to anthrax, the horse to diphtheria, and typhoid fever of man.

Acquired immunity is of two varieties: (1) Active; (2) Passive, the former being the result either of an attack of infectious disease or the use of a vaccine or a bacterin; the duration of immunity produced by either means is variable, sometimes life-long, more often only a question of a few years (small-pox vaccination) or months.

Passive immunisation is brought about by the introduction into the system of the serum of an animal that has already been immunised against the particular disease in question, and the protection thus obtained is of short duration; as per example, the immunity produced by the injection of anti-tetanus serum, used for the purpose of protecting a wounded man or animal against lock-jaw. The serum contains protective substances, which have been formed in the animal from which it has been obtained by the injection of minute but steadily increasing numbers of tetanus bacilli into that animal's blood. It is in this way that all serums are produced, quite a distinct process to that employed in the preparation of vaccines or bacterins, which are living or killed cultures of bacteria, as the case may be, grown on artificial media in an incubator, standardised as to bacterial count, and then injected into the patient in appropriate doses.

In the case of a serum, or anti-serum, as it is sometimes called, the protective agents are supplied to the patient and neutralise the bacterial poisons (toxins) without calling upon his resisting powers for assistance, and really only act as an antidote. Vaccines and bacterins, however, stimulate the formation of these protective and antidotal agents in the patient's own system, and consequently are slower in action than anti-serums, especially when disease has already attacked the patient, as the dose has to be kept proportional to the acuteness of the infection. Both serums, vaccines, and bacterins are specific—that is to say, they are only effectual against the germs that they are prepared from, and this is the explanation of the failures so often attending their use. This in no way detracts from the value of biologic products, either as preventive or curative agents, but at present it limits their applicability to those cases, the causative organism of which is well understood, and necessitates further research into those cases in which they have failed to be effective.

At the present time, especially as regards the infectious diseases of poultry, there is a vast

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GOAT-KEEPING AND POULTRY.—Continued.

But, as I said in a previous article, we cannot afford to face a heavy mortality on the off-chance of beating a world record, and I fancy poultry breeders will be in full agreement with me in thinking that young stock should not be forced beyond their capacity for even development and normal healthy growth.

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TURKEYS.—Continued.

The more docile they are the better, because nearly always the tame birds are the best; curiously enough the reverse is the case with the male birds. Another thing to remember is that the best birds are always those that go to bed last. The birds selected should always be those that have a dainty carriage, and who love foraging.

(To be continued.)

amount of research work to be done before the use of either serums, vaccines, or bacterins can be of universal commercial value, and even if the future brings more exact knowledge, the cost of immunising or treating large numbers of birds must of necessity be a great consideration, and this will largely affect the general use of these products.

That the biologic method of preventing and treating infectious disease is scientifically sound there can be no doubt whatever, we **know** that vaccination protects against small-pox, that anti-tetanic serum protects against lockjaw, that diphtheria has lost its terrors with the advent of the antiserum, and that the innoculation against typhoid fever reduced our mortality from that disease during the war to a negligible figure; and there is little doubt that as time goes on, and more knowledge is gained, that other diseases will be controlled along the same lines. This is the position, let us make the best of it, and each one of us do our share to add to the already mighty mass of knowledge gained by the joint efforts of the practical and the scientific worker.

GOVERNMENT OF NORTHERN IRELAND.

MINISTRY OF AGRICULTURE EGG-LAYING TEST (PULLETS), 1923-24.

Summary of Results.

SECTION 1 (White Wyandottes). 23 pens of six pullets each competing.

1st prize: Miss R. B. McCormick, Stewartstown (Pen 14), 1,408 eggs. 2nd prize. Mrs. Benson, Killymoon, Cookstown (Pen 3), 1,293 eggs. 3rd prize. Mrs. Mitchel, Markethill (Pen 17), 1,185 eggs. 4th prize: Miss A. McDonald, Comber (Pen 15) 1,230 eggs.

SECTION 2 (White Leghorns). 21 pens of six pullets each competing.

1st prize: Mrs. Workman, Donaghadee (Pen 24), 1,289 eggs. 2nd prize: Mrs. Marshall, Whitecross (Pen 32). 1,172 eggs. 3rd prize: Miss Marshall, Markethill (Pen 31). 1,144 eggs. 4th prize: Mr. Thomas Gibson, Cookstown (Pen 27). 1,267 eggs.

SECTION 3 (Non-Sitters, other than White Leghorns). Eight pens of six pullets each competing.

1st prize: Mr. J. Cowie, Dunmurry (Black Leghorns), (Pen 45). 1,223 eggs. 2nd prize: Mrs. Mayne, Newtownards (Black Leghorns), (Pen 48). 1,081 eggs.

SECTION 4 (Sitters other than White Wyandottes). Eleven pens of six pullets each competing.

1st prize: Mrs. Irwin, Mount Irwin, Tynan (Rhode Island Reds), (Pen 58). 1,230 eggs. 2nd prize: Miss N. Ewart, Portadown (Rhode Island Reds), Pen 55. 1,175 eggs.

SECTION 5. Station Holders. Eight pens of six pullets each competing.

1st prize: Mrs. Mayne, Newtownards (White Wyandottes), (Pen 68). 1,229 eggs. 2nd prize: Mrs. Grey, Ballymoney (White Wyandottes), (Pen 66). 1,310 eggs.

MEDALS.

Best Pullet in Test.—No. 99 in Pen 17 (White Wyandotte), the property of Mrs. Mitchel, Markethill.

Best Pullet in Section 1.—No. 99 in Pen 17 (White Wyandotte), the property of Mrs. Mitchel, Markethill.

Best Pullet in Section 2.—No. 163 in Pen 28 (White Leghorns), the property of Captain Charles Heron, Killyleagh.

Best Pullet in Section 3.—No. 279 in Pen 47 (Black Leghorn), the property of Mr. A. E. J. Hurst, Dunmurry.

Best Pullet in Section 4.—No. 226 in Pen 55 (Rhode Island Reds), the property of Miss N. Ewart, Portadown.

Best Pullet in Section 5.—No. 410 in Pen No. 69 (White Wyandotte), the property of Mrs. Stevenson, Benburb.

CUPS, ETC.

Ministry's Silver Cup, Winter Egg Prize, Scientific Poultry Breeders' Association's Cup: Miss McCormick, Pen 14 (White Wyandottes), Stewartstown.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

Den (Doncaster). No, lime thrown on the dropping boards will not cause roup. It is curious you should ask the question, as it is the second time it has come to hand this week. If from any cause it is blown in the birds' faces, it will irritate the respiratory organs, and that will result in running at the nostrils and eyes and sneezing, which possibly your friend mistook for roup. I have known the same thing occur when very dusty peat moss litter is used. (2) Your selection of the hens for next season's breeding pen seems to be quite on the right lines, with the exception of No. 61, for although her record is 183 eggs, she did not begin to lay until nine months old, and has no winter record; further, you say she went into moult at the end of August, so that she was slow to mature, and did not stay the course. The cockerel is a very promising-looking birds; he is quite big enough. "Quality in the sire, size in the dam," is a sound axiom.

Twenty Two (Eltham). I do not like creosoting the inside of a house; it makes it very dark, and light is one of the first essentials of health. Far better use lime-wash, and add carbolic acid to it at the rate of of a ¼lb. to the gallon. Remember we have the dark months coming. Don't attach any importance to the suggestion that there will be more red mite because you have dropping boards. Red mite are at home in the perches and crevices of the house when dropping boards are not used; spray the boards with Izal once a week, and you will get no red mite. (3) A hot mash as a stimulant to the birds on a cold morning is not to be compared to half-an-hour's scratching exercise. You rely on the latter, and throw a handful or two of kibbled grain in the litter directly the birds are off the perch. it will be much better for them.

Disgusted (Abingdon). I have carefully examined all he samples you sent me, and the fault is not there, hey are all of good average quality; changing to dry mash feeding would not help matters at all. The only possible trouble with the feeding may be that you are feeding a "sloppy" mash; this causes digestive trouble. If that is so, you must remedy it, and feed t in a crumbly moist condition. It would be slightly improved if you added another half part biscuit meal. Now these pullets are doing very badly. This may be due to three causes:—(1) The parent stock may have been weakly or immature; (2) There may have been overcrowding; (3) They may be suffering from insect pests. You give me no information, but simply suggest it is the food, and send the samples, and, as far as I can see, this is not the source of the trouble. It is up to you now to find from these suggestions what is the cause. It would be wise to examine them very carefully for insect pests in the first place, and if you find lice dust them with sodium flouride, particularly under the neck hackle, the wing, and round the vent. (2) I don't quite see what you are to gain by crossing your Black Leghorns with a Minorca male. Why not breed them pure? The dark legs in the pullets do not indicate that this cross has been made; if you were to examine them, and note the under-colour, you would see it was dense black. You will not get good leg-colour with dense black under-colour in B.L. hens

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C. E. T. (Oldfield). It would be a mistake to buy the cockerel, in spite of the fact that he took first prize at the show, if the breeder cannot give you the dam's record, and admits that the bird was bred from a flock which was not trap-nested. Judges differ very much, and the bird might even not have been placed by another judge, but apart from that the fact remains that he may have been bred from a low fecund hen, and as you are out for eggs, you cannot afford to run the risk. (2) The sample of mixed corn is good, as far as quality goes, but there is too much whole maize in it. The mash would be all the better if you were to reduce the meat meal by half-a-pound, and increase the biscuit meal by a half. In other respects your feeding is quite satisfactory. Thanks for your appreciation of "Eggs."

J. Gill (Oswestry). The six pullets are none of them to be recommended as breeders, in spite of the fact that they came from such an expensive pen; the three best have been very broody, and lay small eggs, while the only thing to recommend the other three is the fact that they lay large eggs, but they were so long in maturing that you cannot breed from them. I would not advise you to breed from any of them. If you use the best you have to get rid of the small egg factor, and they will transmit the broody factor, and the others laid very badly during the winter months, and were slow to mature. (2) The sample of fish meal is a very poor one, containing an excess of oil, and will be likely to make the eggs taste besides upsetting the birds.

E. D. (Harlington). The house would accommodate 25 Leghorn pullets comfortably; it would be better not to divide it. (2) As an all-round duck, I do not think you can beat the Buff Orpington. It is possible that some "duckers" will not agree with this opinion, but I do not know a better. (3) It is curious that the Wyandottes which you sold for a song to a neighbour have bred such good pullets, especially as you say you almost gave them away, because you were disgusted with their egg yield. There is just the possibility that your neighbour managed them better than you did, isn't there? And there is also the fact that a well-mated hen will often breed better than herself. From what I can gather from your letter, you are too much inclined to feed by weight, and are not very observant; you would be wiser to put the scales away, and see that your birds do not go hungry.

W. N. (Wyke). If you are afraid that your Wyandottes are getting too small, you will effect improvement best by careful selection of hens which are medium size, and which do not mature sexually too quickly. I would not advise you to attempt improvement by the introduction of an exhibition male; you will introduce something besides size, if you do that, which will not be so desirable. You must remember that a bird carries every character of his race or strain besides those which are desirable. It is best to try and improve size through the females. If you do not like the method suggested above, buy two or three good exhibition hens. Be careful that they are not in the least coarse and are of average size; mate these to one of your own cockerels, and trap-nest the pullets; from these you may be able to select a few birds which you can then graft on to your own strain. (2) As to your friend's cross-breds, may I refer you to the remarks in S.P.B.A. notes this week under the "Inheritance of Fecundity."

D. W. (Canterbury). Yes, I think your dealer is giving you excellent value for the money in making the dry mash up for 13s. cwt. I would suggest, however, that he might even make it more cheaply if he reduced the bran to 1lb., and substituted 1lb. of maize meal for one of S.G.O. The ingredients are all of good quality. The formula I have just given you would be a better one for you to get a good supply of eggs during the coming winter. No, you can put them on this formula, and it will not upset their laying. The kibbled maize and wheat is a very good quality.

R. G. C. (East Grinstead). Dried bracken or fern is quite suitable as litter for poultry houses. I do not think there is any risk in using it. The only objection is that it crumbles very rapidly when dried, and becomes dusty. There is nothing else against it, so far as I am aware, and I have known it used on many farms.

S. T. (Watford). The cost of feeding (just over 3d. per week) is rather high. Of course, this depends, in a great measure, as to how you are buying. I cannot recommend you a cheaper egg-producing mash than: 2lbs. bran, 4lbs. middlings, 2lbs. maize meal, and 1lb. meat and bone meal. The birds should have free access to this mash throughout the day. The quantity they eat would not be excessive, as you have reduced the grain ration to the minimum. Now that you speak of increasing it, of course, there would be a smaller consumption of mash. Perhaps it would be better if you were to make it two ounces per day. I cannot possibly help you to a cheaper formula than this. It would be wiser to turn your attention to buying more cheaply than to altering your formulas. We have forwarded you particulars of the S.P.B.A. under separate cover.

T. H. R. (Grantham). The formula given would be quite suitable for either Black Leghorns or R.I. Reds five months old. In reference to the sample of maize meal you send. It is not at all a good one. The bran too is very inferior. In fact, so bad that it is not fit to feed. The meat and bone meal is just fair. The sample of middlings, besides containing a good deal of ground-over bran, also contains a good deal of the awn of the wheat. It is not at all a good sample. The ground oats at 2s. per stone are quite good, and good value for the money.

"Doubtful" (Pickering). As the parts are by measure, the proportion of ground oats is rather excessive, and it would be advisable to reduce them to one measure, and add another measure of sharps. The second mash would be quite suitable. I think you should handle these R.I. Red pullets. It is rather extraordinary that you have never had more than seven eggs a day from the thirty-six birds. The first mash was a little deficient in protein, but the change, as suggested, will put that right.

POST-MORTEMS.

H. B. C. Apoplexy was the cause in this case. The heart was too big for the bird, and its pumping power too great for the blood vessels. The liver and kidneys were gorged with blood in a condition of stasis. The excitement of the show may have precipitated the trouble, but such high condition in males is always liable to pass on to one of plethora. It is not, of course, infectious, but you may well ask yourself if you have not forced the pace, and, for the safety of the rest, give a 24-hours' fast and a week's treatment on salines, preferably the sulphate of sodium, about 15 grains each morning in the food.

W. L. P. The cause in the case of the R.I.R. pullet was inflammation of the uterus from egg binding. The carcase was in a well-nourished condition—in fact, there was too much fat around the internal organs, and this may account for the inability to lay. It would be as well to reduce the fat-forming portion of the ration and to give more exercise.

B. S. The post-mortem examination of the pullet showed no actual lesions of disease to account for the wasted condition of the body. The only thing abnormal was a very full and distended gall bladder, which rather suggests that the cause may have been dietetic and digestive failure owing to the bile not reaching the intestine, where it takes an essential part in digestion.

H. R. The cause in the case examined post-mortem was peritonitis, due to a ruptured uterus, which was full of consolidated egg material. There was evidently some deficiency of function, as no attempt had been made at egg formation or shell production, and the contents of the uterus formed a perfect cast of that organ.

F. E. B. Post-mortem examination revealed broken yolks and flooded abdomen, and one yolk dead on the stalk. The heart and liver were powdered with gout deposits (urates of sodium). The cause is over-feeding with rich foods and want of exercise. We recommend you to fast the remainder for a full 24 hours, and give every morning for ten days a dose of 15 grains per bird of sulphate of sodium in the mash. Some little exercise will be got by distributing their grain ration among short litter, in which they will scratch in order to find it.

T. K. Your signature is undecipherable, but the cadaver is identified by the postal stamp. The subject will not throw any light upon your other losses, as this is a case of distension of the great vein which brings the blood back to the heart. This was enormously distended with a great clot and stopped the action of the organ. We cannot tell you what caused it, but it was not from any disease. The mottled liver was due to the obstruction in the circulation, while the clot was forming the plug above referred to.

E. M. S. This splendid layer was starved in a land of plenty, owing to an obstruction of the bowel, and ulceration following. The left lung was diseased through the presence of aspergillosis, which is a mildew disease and often contracted from damaged forage and from moss litter or other sources innumerable. Where it is found to exist we advise giving iron in the drinking water, at the rate of 30 grains to the gallon. There was another reason for recommending iron in this case, namely, the infestation of the air sacs with mites (Cytodites nudus), which is an acarus-like mange but without the hard shell in order to suit its environment inside the bird. If you should be sending a bird at anv future date, please time your letter to reach us about the same time, as we have to dissect them without the help of any information from the sender, and many subjects arrive full of maggots.

B. One of the hens had a ruptured uterus and peritonitis following on escape of the egg material into the cavity of the abdomen. This was quite a clear case despite decomposition. I dissected the other, and sought in vain for the cause of death, because she was not only being eaten up by maggots in the flesh, but the internal organs were a writhing mass, and the disintegration was such as to make a diagnosis impossible. Both hens had too much abdominal fat, and you would be doing right to fast the flock for 24 hours entirely, and follow this up with 20 grains of sulphate of soda in the morning mash for two or three weeks, so as to lower tension and prevent congestion.

E.B. This bird had an abscess in the lung and a wound in the glandular stomach. A very diligent search failed to discover a shot or slug or piece of wire, but the surrounding inflammation was of the kind due to such injuries, and I have no hesitation in assigning the trouble to such a cause.

J. Although there was a broken egg in the duct, and a small area of peritonitis, I do not think that was the cause of death, but that your guess is probably right. It was not an irritant poison, or I would have found erosions or other evidence. I should assign it to some narcotic berries, or seeds, causing paralysis of the heart. This is only an opinion formed. No proof could be obtained without an exhaustive analysis. I can, however, assure you that it was not an infectious disease.

W. This was a very acute case of gout. The heart, pleurae, liver, etc., were all covered with fine urates of sodium, which is the unmistakable sign. With this description you may recognise it if another dies under similar circumstances. Fast the birds and give about 15 grains of glaubers salts daily in the mash.

McG. The pullet had a form of diabetes and the paralysis was a self-intoxication, due to absorption of urea. It is not an infectious disease, but the food question should be carefully gone into, as there may be something that is not agreeing with others.

A. L. The post-mortem examination of the hen showed the cause to be blood poisoning, due to an aborted and decomposed yolk. There were no signs of infectious disease. She had not commenced to lay, so the double yolker is somebody else's. Thank you for your appreciative remarks; that and the great interest of the work amply compensates for its unpleasantness.

LONDON MARKET ADVICE TABLE, OCTOBER, 1924.

The poultry trade has not fallen quite so low as it usually does at this time of the year. To a great extent this is caused by the fact that Irish chicken are not arriving in the enormous quantities usual, and so far Game does not appear to be very plentiful, anyhow as far as Grouse and Partridges are concerned. We have yet to see how plentiful Pheasants are.

The general state of the market for this month will be as follows:—

CHICKEN will maintain fair prices for this time of the year, and there will be a good demand for birds of all sizes, except those under 1½ lbs.

HENS. Old hens, providing they are fat, will still sell well alive, providing they scale 4½ lbs. or over, but Leghorns and birds which have been exhausted by a long period of laying do not sell so well.

RABBITS are now in good demand, and. providing the weather remains cool during this month, the demand will steadily increase, and automatically will come improved prices.

DUCKS. There is still a fair demand for good large duckling, which should be sent killed and clean plucked, but it is difficult to sell the small coloured or runner ducks on the London market.

GEESE. There will be a steady demand for geese from now onwards, but the good prices will only be obtained for those birds which have been specially pen fed. They should be sent killed and clean plucked.

The Scientific Poultry Breeders' Association.

UNCLAIMED POSTAL ORDERS.

We have a number of letters from members saying they are enclosing P.O., etc., and have not done so. These have been notified, and still not remitted:—

Also, P.O.'s from:—

Lyndhurst.
Newcastle-on-Tyne.
Oundle.
Stanhope (Lincs).
Aldershot,

with no names enclosed. Will members, who have not received receipts kindly advise us? Unless they do so their names cannot appear in the Register.

KEIGHLEY BRANCH.

Members of our Keighley Branch 'ad a treat on Wednesday, the 24th ult., when Mr. Percy Wainwright kindly came over from Castleford and lectured. He began with the Housing of Birds, Ventilation, the Necessity for Absolute Cleanliness, on Foods and Feeding, and ended up with pointing out the necessity of getting the right strain, even if we had to give a little more money for it. Many questions were asked and answered.

Mrs. Wilson tells me that, in addition to the Special Prizes enumerated in "Eggs" of 17th September, for the Keighley S.P.B.A. Section of the Yorkshire Federation Laying Test, Capt. Owen has kindly offered a Silver Spoon for the R.I. Red pullet producing eggs to the highest cash value; Mr. Frank Snowden has offered a cockerel, value two guineas, for the Black Leghorn pullet producing eggs to the highest cash value, while Mr. Percy Wainwright has offered a Silver Spoon for the pullet in the whole section producing eggs to the highest cash value in the first six months.

APPLICANTS FOR MEMBERSHIP.

Cope, Mrs. E., "Coralynn," Race Hill, Brighton, Sussex.
Jackson, T., 29, Victoria Avenue, Chatburn.
Warwick, R. G., The Square. Wickham, Hants.
Warwick, W. O. G., Gravel Hill House, Shedfield, Botley, Hants.
Mawdsley, Thos. H., 84, St. Augustine's Terrace, Hanson Lane, Halifax.
Webb, P., 11, Grove Street, Higham Ferrers, Northants.
Hibbert, Chas., 6. Springcroft Street, Reddish, Stockport.
Kidd, Mrs. M. C., Newbiggin House, Dacre, Penrith, Cumberland.
Holden, R. A., 28, Rossendale Road, Burnley.
Jackson, G., c-o Mrs. Atkins, Stoughton, Nr. Leicester.
France, Jos., Loud Side, Goosnargh, Nr. Preston. Lancs.
Bailey, M. E.. 15, Gregory Avenue, Lenton, Notts.
Cadbury, Mrs. E., Westholme, Selly Oak, Birmingham.
Lowcock, Mrs. F. D., Ravensbourne, Rossett.
Lewis, Walter, Frankfield, Georgetown Road. Dumfries.
Mann, A. E. T., "Lynague," Procter Road, Hoylake, Cheshire.
Barrow, A., Kilncroft, Warton, Carnforth.
Lee, T. G. E., The Stones, Ashley Road, Salisbury.
Bellamy, Harold H., Proutatown Farm, Whitchurch, Tavistock, Devon.
Cordingley, Laurence, Thorpe Hill View, Grassington, Skipton.
McNay, Joseph, Langhill, Croy, Dumbartonshire.
Furze, F. M., Goldstones Farm, Ashdon, Saffron Walden, Essex.
Walden, H. V., Ivanhoe, Grange Road, South Green, Nr. Billericay, Essex.
Mainwaring, T. C. F., Rays Hill P. Farm, Cholesbury, Tring. Herts.
Gent, Chas. W. (Junr.), Rangers Lodge, Oakhill, Horsham, Sussex.
Hesketh, G., 80, Campbell Street, Farnworth, Nr. Bolton.
Oliver. S., Glenroy, Peaks Lane, New Waltham, Nr. Grimsby.
Robson, J. H., Valley View, Kings Langley, Herts.
Tilke, Leonard S., Moorwood, Oakhill, Nr. Bath.
Stanway, P. Anderton, Spring Hill P. Farm, Camp Road, Carnwell, Sutton Coldfield, Birmingham.
Logan, G. L., Pewsham Poultry Farm, Nr. Chippenham.
Brown, Ebor, 19, Green Lane, Glusburn, Keighley.
Buckley, J., Cotingley, Bingley.
Curtis. Ed. C., 52, Winifred Street, Swindon, Wilts.
Williams, Maj. E. C. T., Trevales, St. Stythyans, Perranwell R.S.O.. Cornwall.
Martin, Herbert W., Perivale Farm, Rockland St. Peter, Attleborough.
Stallard, J., Burgate, Fordingbridge, Hants.
Calvesbert, B. A., 80, Sirdar Road, Ipswich, Suffolk.
Dean, C. W., Brookside Utility P. Farm, 114, Wilbraham Road, Fallowfield, Manchester.
Mills, Robt. A., West View, Stalham, Norwich.
Lloyd, W. F., 15, Stone Street, Newtown, North Wales.
Thompson, W. E., 14, Fylde Road, Poulton le Fylde, Lancs.
Jameson, John E., The Rookery, Brize Norton, Bampton, Oxon.
Leader, J. S., 23, Waterside Street, Strathaven. Lanarkshire.
Hancock, C. C., Heywood, Wembworthy, N. Devon.

Correspondence.

TABLE POULTRY.

To the Editor of "Eggs."

Dear Sir,—I have endeavoured on several occasions to impress upon the members of the S.P.B.A. the absolute necessity of producing their table poultry to be ready for marketing between January and June.

It is during these months that the highest prices can be obtained for table poultry ranging from the Petit Poussin to the Large Spring Chicken; and it is only by members using their best endeavours for their poultry to be ready for marketing between these months that they will make a successful year's trading.

It now being October, all members who anticipate taking up table poultry as an industry should seriously set to work and make their arrangements for this early production, but they should take into consideration the fact that suitable eggs for incubation are not plentiful at this time of the year.

I feel quite sure that this reminder will be of great service to those who are not yet fully aware of the manner in which to reap the benefits of the London Market, and it would be useless to issue this advice when it is too late for the producer to act upon it.

Last February 8oz. Poussin realised as much as 2s. 9d. each, the reason being that they were scarce. Members will appreciate the fact that with the increased supply there may be a decrease in price, unless the demand keeps very good, but it should be obvious to those engaged in poultry production that there is plenty of scope for marketing their birds advantageously if they will only produce them at the right time, and now is the time to make the arrangements for that production.

Yours faithfully,
A. V. CLARKSON.

CO-OPERATIVE POULTRY PRODUCTS, LTD.

To the Editor of "Eggs."

Dear Sir,—I have read with much interest Mr. Hedworth-Foulkes' reply to my letter, published in your issue of 17th September, and I am glad to see that I was mistaken in my assumption that the first object of the Society had been shelved.

I am possibly incapable of realising the full objects and possibilities of the scheme, my information as to these having been derived from the prospectus, but I am really quite capable of understanding the initial difficulties, and I should have waited with patience for the Society to commence business had it not been for the National Egg Scheme, which, I think, justified me in coming to the conclusions contained in my letter.

I am glad to note that Leghorn cockerels and hens are not classed as "inferior stuff," but is the "really first-class article" mentioned in the context I did not quote.

I gather that until a Government Loan was assured tenders could not be invited for the plant necessary to proceed with the original objects of Poultry Products, Limited. The capital required for Poultry Products, as distinct from the National Egg Scheme, was £12,000, all of which was allocated.

It is fair to assume that either capital in excess of the £12,000 has been provided, or that the Poultry Scheme has been cut to provide the capital necessary for the Egg Scheme.

The Chairman says he fails to see my objections to the National Egg Scheme. I will state my objections as plainly as possible. I object to the Committee of the Poultry Products, Ltd., utilising the capital subscribed on its prospectus for other purposes than the main object, as set forth in that prospectus, unless and until they are authorised to do so by a vote of members given in general meeting. This objection is modified if the capital so used is surplus capital over and above the £12,000 allocated, and is not required for the main object.

I feel certain that the committee can rely on the loyal support of members in furthering the objects of the Society, but I do not agree with the Chairman that all depends on that.

As much, and more, depends on the loyalty of the Committee to the members, and in their keeping a single eye on the **main object**, for which the Society has been formed, viz.: The betterment of the prices obtained by its members for their **surpl poultry**.

The prospectus of Poultry Products, Limited, set forth a we conceived, compact, business-like proposition. Its objects we well-thought out, the capital required moderate, the qualificatio of the proposed manager unexceptional, and the advantages members obvious.

The prospectus of the National Egg Scheme contains no estima of capital required. The qualifications of the manager are n given, and the advantages to members have already been offer by similar concerns with no marked success. There is no me tion of the marketing of eggs in Mr. Hanson's original lette or in the report of the January meeting, both published "Eggs."

The mention on Page 2 of the prospectus referred to by t Chairman is obviously intended to cover a possible developme of the main object, in exactly the same way as any limited co pany takes power in its Memo. of Associations to trade in a direction in which its main object may develop. There is, furthe no mention in the report of the General Meeting on 3rd July

If the demand for the marketing of eggs was so insistent, was surely in evidence before the General Meeting, and wou surely have been raised by one of the large number of membe who ask for it.

A National Egg Scheme may be a very desirable object; does not happen to be the object for which Poultry Product Ltd., was formed.

Yours faithfully,
NOEL BUCHANAN,

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS, 1923-1924.

Report for the Eleventh Period.

There have been a few changes in the relative positions the leading pens in several of the Sections for the Elevent Month, which terminated on the 3rd of September. The situatio in some of the sections is very interesting, the small margi between some of the pens leaving the final places dependent o the concluding month's performance.

The general average of egg production is fairly good, th output being 73 eggs per pen of six birds.

Summary of the Leading Pens.

Section 1. White Leghorns.—1, Major W. H. Wilson, Longparish, Hants, 1,241 eggs; 2, H. Smith, near Sheffield, 1,162 eggs; Capt. J. Thompson, Shrewsbury, 1,216 eggs.

Section 2. White Wyandottes.—1, J. and W. Purdie, Lanark 1,151 eggs; 2, The Misses D. and M. Keech, near Market Ha borough, 1,141 eggs; 3, Capt. J. Thompson, Shrewsbury, 1,198 egg

Section 3. Rhode Island Reds.—1, G. W. Reeves, Whitchurch Salop, 1,207 eggs; 2, F. and A. H. Sanders, Lutterworth, nea Rugby, 1,142 eggs; 3, A. Wright, Ullesthorpe, near Rugby, 1,12 eggs.

Section 4. Sussex.—1, Colonel A. Dugdale, C.M.G., D.S.O., Moreton-in-the-Marsh, Glos., 1,291 eggs; 2, Mrs. Alistair Robertson Storrington, Sussex, 1,187 eggs; 3, W. M. Golden, Leire, Rugby 1,080 eggs.

Section 5. Rocks.—1, F. R. Welch, Bewdley, Worcs., 1,110 eggs 2, Capt. A. A. Plimpton, Beverley, East Yorks., 1,133 eggs; 3, L. A W. Wright, Loxley, Warwick, 1,052 eggs.

Section 6. Barnevelders.—1, W. R. Partridge, Cirencester, 97 eggs; 2, Mrs. K. Manwaring, Horsmonden, Kent, 998 eggs; 3, Mis C. E. Roads, Bletchley, Bucks, 984 eggs.

Section 7. Black Leghorns.—1, Frank Snowden, Keighley Yorks, 1,145 eggs; 2, J. H. Hodkinson, near St. Ives, Hunts, 1,12 eggs; 3, The Co-operative Wholesale Society, Lancs., 1,099 eggs.

Section 8. La Bresse.—1, H. Durrant, Hurstpierpoint, Sussex 1,016 eggs; 2, The Purley Poultry Farm, Ltd., Surrey, 1,058 eggs; 3 Mrs. Hines, Twyford, Winchester, 1,029 eggs.

Section 9. Anconas.—1, W. Hamnett, Blackpool, 1,048 eggs; 2 F. E. Derham, Hilton, Derbyshire, 1,060 eggs; 3, Stanley Street Porter, Isle of Ely, Cambs, 996 eggs.

Section 10. Columbian Wyandottes.—1, S. J. Shepherd, nea Bridgnorth, Salop. 874 eggs; 2, L. H. Wace, Bridport, 960 eggs; 3 L. H. Wace, Bridport, 851 eggs.

Section 11. Any Other Variety.—1, H. B. Howe (Black Minorcas) near Leicester, 1,150 eggs: 2, Messrs. Blaksley and Blyth (Brown Buttercups), West Moors, Dorset, 962 eggs; 3, Stanley Street-Porter (Brown Leghorns), Isle of Ely, Cambs., 884 eggs.

Exhibition Section.—1, W. Hamnett (Buff Rocks), 1,050 eggs; 2, Ouse Manor Farms (Golden Barred Rocks), 1,063 eggs; 3, A. Howard (Light Sussex), Maidenhead, 1,047 eggs.

SINGLE PEN TEST.

Section 1. White Leghorns.—1, Miss H. Baylis, Stratford-on-Avon, 219 eggs; 2, Tom Barron, Preston, Lancs., 226 eggs; 3, R. Green, Preston, 226 eggs.

Section 2. White Wyandottes.—1, E. Watson, near Colne, Lancs., 243 eggs; 2, E. Clough, near Lyme Regis, 252 eggs; 3, C. W. Shepard, Malpas, Cheshire, 208 eggs.

Section 3. Any Other Light Breed.—1, C. W. Shepard (Black Leghorn), Malpas, Cheshire, 218 eggs; 2, B. Robinson (Black Leghorn), Spilsby, Lincs., 221 eggs. 3, W. Hay Miller (Black Leghorn), Edinburgh, 208 eggs.

Section 4. Any Other Heavy Breed.—1, Major R. M. Woolley (R.I. Red), 217 eggs; 2, A. White (Light Sussex), Bickerton, Malpas, Cheshire, 205 eggs; 3, W. Hamnett (R.I. Red), Blackpool, 186 eggs.

Ratios of the Sexes.

Famous Geneticist at Midland College.

The poultry conference arranged at the Midland Agricultural nd Dairy College, Sutton Bonington, is now a regular feature the activity of the College, and there was a good attendance on uesday, when a full day's session was opened by Mr. Percy A. rancis, the Poultry Commissioner for the Ministry of Agriculure, visitors coming from all parts of the country, though the ain body was more representative of Leicestershire anl Notts., wo of the contributing counties to the upkeep of the College. his conference was on the most ambitious scale so far attempted, nd the principal, Mr. Thos. Milburn, who came to the College om Lancashire, a county which contains the major portion of he hen population of England. The Midland College has also augurated an egg laying trial, and the instructional work has een greatly augmented on the poultry side, a full modern plant aving been installed by Messrs. W. and T. Markham, of ueniborough.

HEN AS RENT EARNER.

Mr. Francis, in his opening remarks, said such conferences ere extremely useful, for in the past poultry keepers had been nder the disadvantage of being isolated and unable to exchange iews personally. Nothing but good could come from a closer sociation between the purely agricultural farming and poultry rming. From economic reasons the general farmer had been mpelled to devote more attention to poultry, and in this connection he could tell them a farmer in a biggish way who had shown im his books, which disclosed the fact that in 1923 he had lost 200 on the general farm, and made a profit of £300 on his oultry alone. If properly conducted poultry would be one of he most profitable side branches of agriculture. The position in merica bore out these remarks. He found practically everywhere the general farmer paying more and more attention to oultry keeping, for they were in a position where eggs could be roduced most cheaply. There was no doubt that unless our pecialist farmers are able to improve their methods and bring own the cost of production they would have to face severe competition in the future from the general farmer. At Harper-Adam's onference a fruit grower told them it would pay him to keep poultry in his orchards even if as poultry they did not bring in anything, though they did bring a profit of 7s. per head per annum. unning the birds in the orchards was so valuable from the point f clearing the insect pests and manuring the ground as well as nproving the quantity and quality of the fruit. This, again, as another possible source of competition.

In alluding to the presence of Dr. Crew, the Chairman said e was one of the foremost geneticists of the day. As poultry eepers they needed to understand the genetic constitution of the ird, especially as to the mode of transmission of the factor of igh fecundity. It should be possible for the best breeders to roduce year by year without fail birds of the highest powers, nd the problem needed to be placed as regards solution on a uch surer foundation than was the case at present.

INFLUENCING SEX RATIO.

Dr. F. A. E. Crew, the first speaker, is the Director of the nimal Breeding Research Department of the University of Edinburgh. He pointed out at the outset that the inheritance of ecundity was the outstanding problem of the breeder, but he ended that morning to devote himself to the question of the ossibility of the control of the sex ratio. This, to the purely gg farmer, was of great importance, it was of great economic mportance if he could obtain by control a decided preponderance f females in the hatches.

The fowl was a very admirable material for experiment, but here was an initial difficulty. While he (the speaker) could buy n incubator and hatch chicks in order to make experiments in the ex ratio, some of the bad results in hatching might well be ue to his lack of knowledge of incubation. Consequently there as wanted the closest co-operation between the experience of he practical breeder and the professional scientist.

Dr. Crew went most interestingly into many details as to the control of sex, and pointed out that already it had been possible to determine sex. To control this in the fowl, what had to be done was to interfere with what would be the ordinary process of the ripening of the egg, so that if hens were wanted they got more of the "X" beauy ova and for cocks the "Y" beauy. They were feeling their way by altering the rate at which the individual consumes its energy, and thus affect the production of these sorts of eggs. It was all indefinite as yet, but it was possible that by manipulating diet—by controlled husbandry—they might ultimately be able to get a preponderance of one sex. Was it possible to control the sex ratio—to obtain more males than females or more females than males? In the case of the mammals this segregation of the sexes had been defintely established, but not in the case of the hen. What was needed at present was to observe closely those individual birds which habitually laid eggs which hatched male or female predominantly, and then to go further and decide whether this character was due to an accident of development or was hereditary.

The discussion was opened by Mr. George Palmer, of Wykin, Hinckley, who said he did not believe man could ever be allowed to influence sex, especially with the human race. He was a very great believer in male and female-bearing strains—he was one of seven brothers, and his mother never had a daughter. He was convinced this matter was "beyond the veil," and the Creator would never allow them to interfere.

THE HUMAN FACTOR.

Capt. J. P. Rice, B.Sc., head of the Animal Diseases Division, Ministry of Agriculture, Northern Ireland, read a paper on Bacillary White Diarrhoea, a disease which commands more interest than others with poultry farmers. Bacteriological examination was necessary to determine the disease. The best insurance against disease is the bird of sound constitution which is properly bred and managed. Scientific investigations are necessary that we may know how to obtain and maintain the healthy animal, but the major part must be played by the poultry farmer himself.

WORK IN LEICESTERSHIRE.

During the past five years Mr. H. T. Atkinson, Instructor in Poultry-keeping for Leicestershire, has investigated over 500 cases for post-mortem, and he told the Conference that he was much impressed with the large number of cases where death was due to preventible causes—50 per cent. were due to errors in feeding and diet. Many birds which died from peritonitis were excessively fat. He had had cases which seemed to go against the theory that ruptured oviduct occurred among the heaviest layers only for birds in the Leicestershire test, which were some of the poorest layers, had died from this cause.

Tuberculosis had been more prevalent on the general farm, which seemed to point that the management on the general farm needed improvement. Observation on some birds pointed to the conclusion that grit was necessary.

For this report we are indebted to the courtesy of the Editor of "Poultry News."

The Scientific Poultry Breeders' Association.

ANNUAL GENERAL MEETING.

The Annual General Meeting will be held at the Dairy Show on Thursday, 23rd October, at 11.30 a.m. The President, Mr. J. G. Kitson, will be in the chair. There is much important business to be transacted, and the Council hope to be in a position to be able to make an announcement regarding the Food Purchase Scheme.

Mr. Mudie-Draper asked me to remind members who wish to register their birds that the Registration Forms are now ready, and application should be made to him at 25, The Chase, Clapham Common, S.W.4.

It would greatly assist the Editor of the Register if members would write for these forms at once. Usually, we receive a large number of applications, which are either too late or come in at the last moment, which considerably delays the publication of the Register.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 26th SEPTEMBER, 1924.

GRAIN AND FEEDING STUFFS.—Supplies of home-grown corn, especially wheat and oats, continue rather small, the wet weather being all against threshing operations, while the samples that are being marketed vary widely in quality and condition. Wheat of fair milling quality averages about 12s. 3d. per cwt., while feeding samples make lower figures, and the best lots, suitable for seed, up to about 14s. 6d. per cwt. Imported wheat shows a further general advance, No. 1 Manitoba averaging 14s. 8d. per cwt., or 2d. more than last week. Finest samples of malting barley remain scarce, and up to 27s. 6d. per cwt. is reported to have been paid for exceptional lots. Moderate quality malting barley is rather more plentiful, however, and prices have an easier tendency. Feeding descriptions, both home-grown and imported, are in good demand and dearer. English oats are in good demand and quotations are higher on the week, while imported oats are scarce and in request at higher figures, No. 2 Canada Western averaging 12s. 1d. per cwt., a rise of 6d. on the week. Maize is in good supply but demand is brisk, and prices have again advanced in sympathy with those of other feeding stuffs.

Milling offals continue to meet a fair enquiry, and prices are again higher, coarse middlings averaging £10 10s. per ton, an advance of 2s. 6d., while imported pollards at an average of £8 18s. per ton show a rise of 7s. The advance in the price of meals continues, and barley meal, at about £14 per ton, is over £4 per ton dearer than a year ago. Oil cakes continue to meet a quiet trade, but prices are very firmly maintained as supplies, especially of cotton cake, are short.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s.; Hull, £7 12s.; Liverpool, £8 5s; London, £8 5s. Broad Bran: Hull, £9 2s.; London, £9 2s. Middlings—Fine (Imported): London, £10 12s.; Coarse (British): Bristol, £11; Hull, £10 15s.; Liverpool. £10 5s.; London, £10 2s. Pollards (Imported): Bristol, £9 5s.; Hull, £8 15s.; Liverpool, £8 15s.; London, £8 17s. Rice Bran: Bristol, £8 15s.; Liverpool, £8 15s. MEAL.—Barley Meal: Bristol, £13 15s.; Hull, £13 15s.; London, £14 7s. Maize Meal: Bristol, £12; Hull, £11 10s.; Liverpool, £11 7s.; London, £12. Maize Germ Meal: Bristol, £12; Hull, £11 15s.; London, £11 15s. Maize Gluten Feed: Bristol, £12; London, £10 10s.

EGGS AND DEAD POULTRY.

Enhanced prices are realised for practically all descriptions of eggs, the rise generally amounting to from 6d. to 1s. 6d. per 120. There is a steady business for poultry at recent figures, and good offerings are available.

Week-end Prices—Eggs (per 120):—British, 23s. 6d., 22s. 0d.; Irish, 19s. 6d., 18s. 6d.; Danish, 22s. 0d., 20s. 0d.; Dutch, 24s. 0d., 21s. 0d.; Lithuanian, 16s. 0d., 13s. 9d.; Belgian, 20s. 9d., 19s. 9d.; Italian, 19s. 0d., 17s. 6d.; Roumanian, 14s. 6d., 13s. 0d.; Russian, 13s. 0d., 11s. 0d.

Dead Poultry (per lb.):—Fowls—Surrey, 1s. 9d., 1s. 6d.; Irish, 1s. 4d., 1s. 1d.; Others, 1s. 6d., 1s. 3d. Ducks, 1s. 2d., 1s. 0d, Geese, 1s. 3d., 1s. 0d.

EGGS.

Per Doz.—Ashford: First, 2s. 5½d.; Second, 2s. 4½d. Birmingham: First, 2s. 1¼d.; Second, 2s. 0d. Bridgwater: First, 2s. 5½d. Carlisle: First, 2s. 8d. Chelmsford: First, 2s. 6d.; Second, 2s. 3d. Denbigh: First, 2s. 4d.; Second, 2s. 3d. Derby: First, 2s. 2d. Dorchester: First, 2s. 5d. Exeter: First, 2s. 4d. Hereford: First, 2s. 2d. Hull: First, 2s. 0d. Ipswich: First, 2s. 6d.; Second, 2s. 3d. King's Lynn: First, 2s. 3d.; Second, 2s. 0d. Lincoln: First, 2s. 3d. Llandilo: First, 2s. 1d.; Second, 2s. 0d. Montgomery: First, 2s. 2d. Newport (Mon.): First, 2s. 3d.; Second, 2s. 1d. Norwich: First, 2s. 2d. Oswestry: First, 2s. 4d. Penzance: First, 1s. 11d.; Second, 1s. 10d. St. Ives: First, 2s. 4d.; Second, 2s. 3d. Salisbury: First, 2s. 7½d.; Second, 2s. 5d. Shrewsbury: First, 2s. 4d.; Second, 2s. 2d. Skipton: First, 2s. 1d. Truro: First, 2s. 0d.; Second, 1s. 11d. York: First, 2s. 6d.

FOWLS.

Per lb.—Birmingham: First, 1s. 3d.; Second, 9½d. Derby: First, *4s. 9d.; Second, *3s. 0d. Exeter: First, 1s. 6d. Hereford: First, 1s. 3d. Ipswich: First, 1s. 8d.; Second, 1s. 6d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 6d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 6d.; Second, 1s. 3d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Truro: First, 1s. 5d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *5s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 3d. Hereford: First, 1s. 2d. Ipswich: First, 1s. 6d. Llandilo: First, 1s. 6d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 4d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Truro: First, 1s. 4d. York: First, *5s. 0d.; Second, *4s. 0d.

* Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 1st, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscriptions to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

S.P.B.A. NOTICE.

TABLE POULTRY.

I would like to draw members' attention to Mr. Clarkson's letter, which appears in our correspondence columns, under the above heading.

As a rule, most poultry-keepers produce a large number of table fowls at the time when everyone else has plenty, consequently prices realised are low, and there is great disappointment. The birds are sold at either a loss or a very small profit, and the word is passed on to others, "There is nothing in it." It must be obvious to everybody that after June the market is simply flooded with surplus cockerels, and money in this world is not usually made by the dumping of a surplus on an already glutted market.

EG

Wednesday, October 8th, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH)

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Edited by TOM NEWMAN.
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EXTENSIBLE UNITS

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 8th, 1924.

Editorial.

THE MOULT.

Mr. W. Gosling writes from Princetown, N.J., for information on the moult, and his letter will be of interest to our readers :—

> " Dear Sir,—I am writing you for advice on a subject which has long since been proved a fallacy—i.e., the encouragement of early moulting and its connection with egg production.
>
> From being eight months on a well-known poultry farm in England, also being very interested in the doctrines of " Eggs " and the S.P.B.A., I had been well drilled in the fact that early moulting was entirely to be discouraged. Moreover, I could see this in black and white, as in every case the trap-nest record of the early months was a poor one, and by even looking at these birds they could be seen to be absolute ' duds.'
>
> I am starting a farm in Bermuda, and am depending on hatching eggs from American stock, and I find, from being lucky enough to talk with one of the biggest poultrymen in America, that over here early moulting is advocated, and that a hen that moults in July or August will come into lay far sooner than her late-moulting sisters, which is exactly opposite to English ideas on the subject, as I have always been taught to cull early moulters with a heavy hand. What do you advise me to do when the culling season comes round? I mean in October. Shall I disregard the condition of the feathers altogether, and pay attention to the head points, capacity, etc., only? I feel that if American stock has been bred to this early moulting I might do a lot of damage by throwing out early moulters wholesale, though, at the same time, I am positive they cannot come into lay any sooner because of it."

It is possible that Mr. Gosling has mistaken his informant, and what was meant was not the selection of the early moulter but the encouragement of the early moult, which is rather a different thing. It is unlikely that our American friends would have stock **bred** to early moulting ; for, even assuming it were possible, one can hardly breed for such a character without its affecting another character detrimentally—to wit, egg production. On that score, we think Mr. Gosling need have little anxiety. The question is as to whether or no he should follow the custom of the country and encourage the early moult, and this is one which those on the spot are in a better position to judge than we are

Some years ago we published particulars of an experiment which had been made on these lines in America. It was on too small a scale to be decisive, but as far as it went it proved that by throwing the birds into an early moult nothing whatever was gained in egg production. On the contrary, the birds which had been allowed to moult normally gave a far better result and resumed laying more quickly. There is the possibility that in their efforts to secure an early moult the treatment of the birds was a little too drastic, and that as a consequence they had to get into new bodily condition before they could develop the feather.

Professor Kerr, in his work on Embryology, after describing the structure and growth of feathers, states that :—

> " Perhaps the most interesting point that merges from its study is that the successive sets of feathers —the down feathers of the nestling, and the annual or other sets of feathers in the adult—are not to be looked upon, as has been customary, as successive series of independent individual feathers. On the contrary the down feather and the definite feathers which succeed it in the series of moults are simply portions of a single elongated and basally growing structure, the first down feather being its tip, and the succeeding feathers being successive portions of it. The moult consists not in the shedding of the whole feather, but merely in the breaking off of its projecting portions."

In a recent issue of " Eggs " we asked if any of our readers could explain why the good layer moults late and the poor one early. Mr. Boggust's letter, which appears in another part of this issue, is the only reply received. Can we not find the answer here? There is an old saying, that " What makes feathers will make eggs." When a pullet's yield of eggs begins to slow off, we notice the gradual shrivelling of the secondary sexual organs (the comb and wattles), indicating that the ovary is being less freely supplied with blood for the formation of ova, and their normal appearance is only resumed when the moult is complete. If a pullet continues to lay, what is making eggs cannot make feathers, or at least the growth of the new feather must be very much slower than in the case of the bird which is not laying. Thus we get what appears to be a logical explanation of why the late moulter is the good layer ; in the case of the poor layer the feather will grow more quickly,

(Continued at Foot of Column on Next Page).

Modern Poultry Feeding.

By TOM NEWMAN.

I have a letter to-day from a reader in N. Wales, who complains that his young stock are not coming on as fast as he would like. He encloses samples of bran, sharps, clover meal, maize meal and ground oats. The birds have been fed on cooked mash, but I am not suggesting that had anything to do with their unsatisfactory condition. The real trouble arose from the excessive amount of bran used, and the quality of the ingredients. It is to the latter I wish most particularly to refer. Taking the bran first, it is best described as "woody," and was a most miserable sample, wholly unsuitable for feeding purposes. It was harsh and crisp, and bran should not feel "harsh" when you handle. That is a sure sign that it is inferior. One of the best tests of a good sample of bran is to be able to plunge your hand into the bag, and when it is withdrawn be able to find some of the flour adhering to it, and, as I have said before, the inside of the flake of a good sample should be white, not the same colour as the outside. The sample of sharps was a very bad one, indeed, when I sifted it. There was a great deal of bran in it; in fact it was nothing but fine bran; the clover appeared to be the sweepings of some granary, very little leaf, a good deal of chaff dust and stalk, while the ground oats were very coarsely ground, and did not in the least resemble the Sussex ground oats, which they were supposed to be. It is not often one gets such a thoroughly bad lot of samples as these, and how could one expect stock to do well on such a combination.

Owing to the high price of wheat readers are enquiring whether rye is a suitable substitute. My experience with rye during the war was most unsatisfactory. Fowls do not like it; in default of anything else they had perforce to eat it. I found it caused scouring for a time, and in some cases severe digestive trouble. On more than one occasion losses have been caused from ergot. This is a fungus growth on the grains. If rye is used at all, it should be very gradually introduced. The birds become accustomed to it in time, but I would not feed it if I could avoid it, and would much prefer a good sample of dari as a substitute for wheat. Barley, too, is a much better grain than rye. It will not cause liver trouble as it is said to do, except if it is fed in excess. As wheat is so dear, it will be wise to feed kibbled maize for the grain feed, more especially to layers. All changes in the feed should be made gradually, or there is sure to be a drop in the egg yield, especially if the food which is substituted is not very palatable.

Several readers have written lately asking for a forcing ration, explaining that their one object is eggs, and they have no intention of breeding from their stock, and one correspondent very pertinently asks: "When does forcing begin?" That is impossible to answer; that which is forcing for highly fecund stock would not be so for the average layer. After all you have your good layer and your bad layer, and the most your forcing mash will do is to make them lay eggs a little more rapidly. It will not make them lay more eggs. It simply stimulates the ovary, and its effect can only be temporary. The following mash will be found useful for the purpose, the grain feed must be cut down to a minimum, to induce the birds to consume as much mash as possible:—6lbs. middlings, 4lbs. maize meal, 3lbs. bran, 1lb. S.G. oats, 1lb. pea meal, 3lbs. meat meal.

When the National Poultry Institute is in full swing, one of the most urgent and necessary pieces of work which it can undertake will be the influence of food and feeding on the hatchability of the egg. So far as I am aware nothing has been done in this direction. Of course, it must include the rearability of the chick. I believe some experiments were made as to the effect of animal protein in certain percentages, but nothing very conclusive or helpful has been published, and it seems to me that as much good work could be done with the calcium salts, which certainly would equally pay investigation. My own impression is that if the ration of the breeders lacks anything, and it is very obvious that it does, more especially on the large commercial egg farms where so many birds are kept to the acre, it will be found that it is in the calcium salts, and that this deficiency accounts for poor hatchability more than any other cause, as far as the feeding is concerned. In a breeder's mash I gave three years ago in these columns, I made special provision for these, and many readers have written to say how very successful it has proved. Mr. Boggust, writing last year, said that he had 85 per cent. hatchability throughout the season with it, and others have recorded over 80 per cent. The calcium salts are as important as the protein, and there need be no anxiety as to the other salts if these are supplied in a sufficiency. Often I have had letters from readers asking if the feeding of mangolds will cause poor hatchability, and some have written to say that they have proved that it is so, but when I have made enquiries, almost invariably I have found that the mangolds were the sole source of green food or rather the substitute for it; also that there was a marked deficiency of the calcium salts in the ration. Of course, mangolds are very deficient in these salts and I think this may be the cause of the bad hatching. There is far more risk of a deficiency of them than of the vitamins A. or B.

I see it is proposed to carry out an experiment in

EDITORIAL.—Continued.

because that which nourishes it will not be diverted to egg production.

If there is one lesson we can learn from this, it is—what an important part correct feeding must of necessity play during the moult, and how necessary it is that the birds should be in good condition to moult; the bedraggled specimens which are so common a sight on many poultry plants must be regarded as the result of mismanagement. Does not Professor Kerr's description of the growth of the feather dispose once and for all of the idea that the moult is infectious?

one of the American colleges, to see whether the weight of brown and white eggs can be increased through the feed. It will not be very easy, and I am inclined to think it is rather a matter of keeping the pullet in high bodily condition than by any other means. It is generally agreed that the highest mean weight of the egg is round about the last fortnight in February and the first week in March, after that there is a gradual decline. This is coincident with the time when the pullet reaches its greatest bodily weight. From then onwards until after the moult the layer gradually loses weight, and this would seem to indicate that the only way to increase the weight of eggs is to increase the fat content of the food; in other words, feed a wider ration. That is why I have so frequently advised the feeding of more maize about the end of May, when there is always a decrease in the size of the egg of the heavy layer, and many readers have written to say that their birds have responded to this increase in the fat content of the ration, not only with larger eggs, but with more of them. If the birds were in high condition one would not expect this result.

NATIONAL POULTRY DIPLOMA EXAMINATION.

The examinations of candidates for National Poultry Diploma were held at the Lancashire County Council Farm, Hutton, near Preston, 15th to 19th September, at which ten candidates presented themselves. Of these, five passed in the following order, namely :—

Miss Edith Jane Reeve.
Mr. Eric Birks Lomax.
Miss Norah Chapman.
Miss Marjory Reeve Wood.
Miss Mary Hennerty.

One of the students failed in Book-keeping; nother in Poultry Husbandry and Book-keeping; a hird in Chemistry and Book-keeping; one of the andidates failed entirely, and another was taken ll and could not complete the examination.

The examiners were :—

Poultry Husbandry.—Mr. Fred W. Parton, Mr. T. R. Robinson, Mr. S. Street-Porter.
Agriculture and Horticulture.—Mr. G. H. Garrad.
Book-keeping.—Dr. Arthur G. Ruston.
Building Construction.—Mr. L. C. Powell.
Chemistry.—Capt. E. T. Halnan.
Physiology and Pathology.—Principal O. Charnock-Bradley.

Reports of the examiners will be published in due ourse.

Boundary Poultry Farm, Intack, Blackburn.
26th April, 1924.

Dear Sir,—I have been a reader of your valuable journal, Eggs," for a few months now, and I think it is the best oultry Paper published.

Yours truly,
(Signed) J. BIRCH.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

INFLUENCE OF TEXTURE OF SHELL ON HATCHABILITY.

Some years ago I remember reading an article in the Poultry Press by a breeder who had been investigating the dead-in-shell question on his own farm. The conclusion at which he arrived was, that "hardness" of shell was the main cause of dead-in-shell. Although it is impossible to agree with this, I think it is generally admitted that the eggs of the heavy breeders are more difficult to hatch than those of the lights, and there is without doubt a considerable difference in the texture of the shell. If we pursue this a little further we shall note that the eggs of the Pheasant and those of the Guinea Fowl take some days longer to hatch than those of the domestic fowl, and that they are very much closer in texture and the shell is much harder, so that we may assume that there is some connection between the texture of the shell and the time the egg takes to hatch. This may not be correct, but it is an interesting point, the closer the texture of the shell the slower would be the action of the carbon-dioxide, and if we accept the theory that the lime of the shell is used to build up the skeleton of the embryo, the slower would be its development. I think it may be said that a "good shell means a robust chick," that will of course depend on other constituents in the egg. Perhaps it would be more correct to say, "a bad shell means a weakly chick," which is not quite the same thing. It would appear, then, that with brown-shelled eggs it would be wiser to supply moisture at an earlier stage of incubation; there does not seem to be any other way of solving the problem. But if there is one thing more certain than another, it is that one of the most prolific causes of dead-in-shell is the bad storing of eggs intended for incubation; they are stored in temperatures which are too low, are kept too long, and are exposed too much, so that there is too much evaporation and the membrane is not moist enough to permit the free escape of carbon-dioxide and the intake of oxygen.

EARLY AND LATE MOULTERS.

I have received the following letter from Mr. W. G. Boggust, but I am afraid I cannot agree with what he says. My explanation will be seen in the Editorial this week.

His suggestion that if we could get these bad feeders into a pen by themselves, feed differently to enable them to fill their crops to enable them to continue to lay as long, or nearly so, as these very heavy feeders, although ingenious, would I feel, hardly be borne out by results, for as a rule these very poor layers are generally in very good condition, and the effect of feeding them heavily would be that they would lay on internal fat. It is a matter of the constitution. My contention is that the early moult is caused by the much more rapid growth of new feather, and this is due to the fact that the bird does not make use of the food to produce eggs.

I do not quite see that Mr. Oscar Smart's remarks re feeding wet mash in August affects the point. That would only apply to a good layer which had got into under-condition, and we are not speaking of an under-fed bird which lays poorly, because she is under-fed, but of a well-fed bird which lays poorly because she is a poor layer.

"Dear Mr. Newman,—You ask in 'Eggs' why the later moulters are the best layers, or generally accepted to be so.

Personally, I am forced to the conclusion that one of the reasons, and the chief reason, is the late moulters are always very heavy feeders, and are therefore strong and more virile.

Let any reader of 'Eggs' go round his pens after hens have roosted and feel the crops of the hens; let him or her ring these birds to identify them easily, and 90 per cent. of those with practically empty crops will be his early moulters, therefore, also his worst layers.

I cannot help but conclude that if we could get these bad feeders into a pen by themselves and feed differently to enable them to fill their crops, that these same birds would then continue to lay on as long, or nearly so, as those very heavy feeders, and good layers.

I find birds require more generous feeding in May and June than at any other time of the year, if good autumn laying is to be got. In fact, I feed in the above months only the amount of bran you so recommend for winter mash, besides a good heavy feed of kibbled maize last thing at night.

I do not find more than 5 per cent. of my birds moulting before September

As regards quick feathering, I have tried repeated mashes, but so far the mash you gave in 'Eggs' as a breeders' mash some three years ago I find the best. Birds on this mash seem to grow feathers so rapidly that they are often back in the lay within six or eight weeks.

I am looking forward with interest to your version, and also I trust a good few better from readers."

Yours sincerely,

W. G. BOGGUST.

"P.S.—Years ago I remember Mr. Oscar Smart writing in 'Eggs' that if birds had been dry fed and they, in August, were put on to wet feed, eggs would be very plentiful for six weeks or so, then fall to nothing in a day or so. Does this not show how extra feeding or change of feeding benefits the poor feeder or early moulter?"

VIGOUR.

A member asks me how to tell him how he can find out, by external characteristics, whether his stock is vigorous or not? Well, it is perhaps easier to know than to tell, but I will try. First, the eye, that should be bright and prominent, a dull receding eye is ever a sign of a sluggish disposition and often of disease. Next the comb wattles and lobes; these should be well developed and bright, wrinkled lobes and wattles are often found on birds which have been sick. Next the plumage, this should be tight, a bird in good health and condition will have a beautiful sheen, but you can't expect the sheen in a heavy layer after months of production, so that its absence must not be taken to denote low vigour. Then the tail should be carried fairly high, and the wings close up to the body; add to this a good appetite and activity, and you will not find your birds lacking in vigour. In the male a vigorous bird crows long and lustily.

EGG-LAYING TEST.

THE GLOUCESTERSHIRE REPORT.

Figures for the Twelfth Month.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry-Keeping) for the twelfth month ended September 5th:—

During the month 3,867 eggs have been recorded, against 4,470 the previous month, giving a grand total of 55,269 eggs for the complete 48 weeks and a pullet average of 181.8 in respect of the 304 birds entered.

The exceptionally low percentage of mortality is noteworthy and it is hoped that competitors in the 1924-25 test will assist in maintaining this low percentage by entering the fittest of stock only.

A full report will be circulated to competitors and press as soon as possible, giving details of awards, number of eggs, i.e. 1st, 2nd, and 3rd grade, and all other particulars of each individua bird, and copies will be obtainable, by any other interested persons, upon application to the Secretary.

Section A.—Light Breed (Professional). (Five birds constitute a pen).—Major J. G. Dugdale, 4932 pts.; G. R. Metcalfe, 4872 pts. H. T. Godber, 4712 pts.; Coaley P.F., Ltd., 4650 pts.; Hinton P.F. 4542 pts.; D. K. Nuttall, 4354 pts. All White Leghorns.

Section A.—Heavy Breed (Professional).—T. L. Davies (W.W.) 4932 pts.; H. W. Fowles (W.W.), 4704 pts.; P. S. Beales (W.W.) 4587 pts.; G. B. Metcalfe (R.I.R.), 4269 pts.; J. Loder (W.W.), 419 pts.; G. H. H. Simmons (W.W.), 4140 pts.

Section B.—Light Breed (Confined to owners of not more than 50 laying head.—Miss M. Brown (W.L.), 4456 pts.; J. A. Hal (W.L.), 4348 pts.; K. Wilson (W.L.), 3563 pts.; *Mrs. A. Japp (B.L.) 3095 pts.; *J. D. Crewdson (W.L.), 2958 pts. *One death.

Section B.—Heavy Breed (Confined to owners of not more than 50 laying head).—Maisemore School (W.W.), 4540 pts.; L Grist (W.W.), 4291 pts.; C. G. Young (R.I.R.), 3903 pts.; Miss M Lawrence (R.I.R.), 3664 pts.

SINGLE PEN SECTION.

Section 1.—White Leghorns.—Misses Ransford (12), 1181 pts. Major J. G. Dugdale, 1125 pts.; Misses Ransford (5), 1052 pts.; J E. Boyd, 1016 pts.; Misses Ransford (2), 1015 pts.; J. L. Brown 972 pts.

Section 2.—White Wyandottes.—W. R. Partridge (23), 117 pts.; Philip Clapham, 1055 pts.; W. O. Garbutt (25), 1024 pts.; W R. Partridge (18), 984 pts.. Lord Sherborne, 954 pts.; S. Marston 841 pts.

Section 3.—Rhode Island Red.—A. Daunton (44), 1011 pts.; F W. Clifford, 980 pts.; Miss M. Lawrence, 979 pts.; A. Daunton (32), 900 pts.; Miss H. Reed, 844 pts.; J. N. Horne, 612 pts.

Section 4.—A.O.V. Light Breed.—H. S. Hitch (Ancona), 100 pts.; G. B. Metcalfe (B.L.), 982 pts.; A. Daunton (Ancona), 92 pts.; H. L. Lemon (B. La Bresse), 922 pts.; L. Grist (Ancona), 87 pts.; M. A. Greenway (B.L.), 846 pts.

Sction 5.—A.O.V. Heavy Breed.—Major J. G. Dugdale (L.S.) 1220 pts.; Miss M. Lawrence (Barneveld), 1024 pts.; Mrs. E. Weinholt (Aus. Orp.), 999 pts.; Miss H. Reed (L.S.), 959 pts.; J. L Brown (L.S.), 953 pts.; F. R. Welch (L.S.), 847 pts.

Section 6.—Ducks.—Mrs. E. Weinholt (K.-C.), 234 pts.; Mrs. A Japp (W.R.), 216 pts.; Sherborne Park P.F. (W.R.), 216 pts.; W R. Partridge (9), (W.R.), 202 pts.; Major J. G. Dugdale (K.-C.) 199 pts.; Sherborne Park P.F. (K.-C.), 199 pts.

Pen Duck Section. (Four ducks constitute a pen). Report fo the eleventh month ended 22nd August, 1924.—Major J. G. Dugdale (K.-C.), 748 pts.; Bradley Agricultural School (K.-C.), 74 pts.; *G. H. H. Simmons (K.-C.), 644 pts.; D. C. Herbert (K.-C.) 605 pts.; F. L. Walters (W.R.), 575 pts. *One death.

Report for the twelfth month ended 19th September, 1924.—Bradley Agricultural School (K.-C.), 807 pts.; Major J. G. Dugdale (K.-C.), 797 pts.; *G. H. H. Simmons (K.-C.), 675 pts.; D. C Herbert (K.-C.), 652 pts.; Sherborne Park P.F. (W.R.), 642 pts.; F L. Walters (W.R.), 627 pts. *One death.

(Signed) R. A. and A. M. JOHNSON,
The Cotswold Poultry Farm, Chalford.
H. S. WRIGHT, Hon. Secretary.
Shire Hall, Gloucester.

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

PLANTING TREES AND STRAWBERRY QUERIES.—I have twice touched on the subject of planting, and suggested various important points to remember, so the following remarks are given chiefly with the object of supplementing what I have already written.

First. In ordering trees from the nurseryman it is best to enquire on what stocks the trees you need have been grafted, because very extensive experiments have been carried out at East Malling, and a certain standardization has been arrived at, together with what is the most suitable for certain types or variety of trees or bushes.

Experience has shown that the apples: "Lane's Prince Albert," "Early Victoria," and "Stirling Castle" are best on free stock, and not the Broad Leaf Paradise, or, taking plums as another instance, I have noted that Mr. Seabrook thinks that the delicious "Victoria Plum" should not be grafted on to the "Myrobella," as this stock predisposes it to the dread silver leaf disease.

I feel I cannot write fully on this big subject now, but all good nurserymen will advise you when you name the trees you require, and if you state whether for Cordon's bush, half standard, standards, or for training on walls, or espaliers in the open.

Of course, it must also be borne in mind that the nature of the soil likewise has its influence on the stocks used, and these latter are likewise being studied with the hopes of getting immunity from American blight and other pests which affect the roots, as well as trunks and branches. Mention the nature of your soil, if light or heavy, when making enquiries, before placing an order. Time is slipping by, and we ought quickly to get out plans and costs if we think of planting trees this winter. The sooner our orders are given the better. Do all you can to get trees in the ground during November, anyway before Christmas. I would never plant in the early part of the year, unless before Christmas was an impossibility, and I reckon poultry-keepers will have their hands full with hatching in the New Year.

STRAWBERRIES.—I think I have mentioned that I should always be pleased to answer correspondence respecting difficulties as far as I can, either by letter or through these articles in "Eggs." A point or so on Strawberries and Poultry-keeping having turned up, I propose to deal with it now.

Firstly.—I find, if grown in small quantities, that in many districts the wild birds take a very heavy toll of the best fruit, and unless a sufficient acreage to justify someone to keep off the birds, much good fruit is lost. A neighbour of mine gets up at 5 a.m. with his gun, but I am afraid my pillows are too soft.

Respecting poultry in the plantations. I have not turned mine out amongst the plants, but cannot see but what it might be beneficial if for part of the year only. I say "part," as here a difficulty arises, because we cannot wisely shift birds in lay from place to place, and thus we might have to keep them penned in a too limited area during the fruiting season. Even after fruiting it is probable that our birds, by their continual scratching, would disturb and prevent the "runners" from rooting quickly, and this is a necessary point to remember if we want to take our own stock plants for new beds.

Strawberry plants will last several years, but paying crops come best by limiting to four years, so replant some part of land each year for "succession," and your young plants will give you your largest berries for punnet work.

Yes, a "sprinkling of manure" is a very vague term, and quantities ought to be clearly stated. An exceedingly handy little book, "Manures That Pay" (the Cable Printing Co., Ltd., Hatton House, Great Queen Street, W.C.) would prove a useful all-round guide.

Certainly poultry manure can be used on strawberry beds, and is best applied in February. The ideal method is to store the droppings in a dry shed well dusted or mixed with denture ashes, say, half and half of the bulk, and a dressing of above, 10 cwt. to the acre of this mixture would be good. Reduce the quantity of ashes proportionately if sand is collected from the dropping boards.

Other manures will help, as superphosphates are considered essential, and always improve colour and flavour of fruit. Sulphate of potash is greatly preferred to muriate of potash for strawberries, and this manure is best applied before planting, say, 1½cwt. to the acre. See that the soil is not deficient in lime.

To apply liquid poultry-manure to a strawberry plantation would hardly be a profitable commercial proposition, but it must be remembered that strawberries want moisture.

Before any planting is done it is very important that the ground is well cleaned, and I like to take off a potato crop first as it greatly aids in thoroughly preparing for the young plants.

I much prefer to plant out my own runners the end of August, although it is a general practice to do this in March or April, especially if the plants bought are not from near home.

I take it that early and late varieties are being selected in order to lengthen time for marketing. Next point, please!

Station Cottages, Northiam, Sussex.
1-11-23.

Dear Mr. Newman,—I would like to say how much "Eggs" is appreciated here, and the sound principles governing it. We members feel that we have "a straight deal," and a genuinely helping hand. It is a point of no small importance, for instance, to feel that advertisements of quack and useless goods and stock are not accepted.

Then, the feeding and housing advice is unequalled and reliable. So to you and your staff our hearty thanks.

With my best thanks,

Yours sincerely,
(Signed) E. A. PAINE.

Goat-keeping & Poultry.

By Mrs. EPPS.

ARTICLE IX.—KID REARING (continued).

Exercise will do wonders in developing a kid Until six months old it should be allowed to run quite free, and any little contrivance, such as a packing case or pile of logs, will give a kid a great amount of pleasure as well as exercise. Care should be taken that in the early days jumps are not too high, as legs can easily be broken. When a kid is a little older it is remarkable that their bones are so strong. I know of a case where a young animal jumped from a railway bridge into the lane passing below, a distance of thirty feet, and received no injury whatever, beyond grazing its nose on the gritty surface of the road.

Up to this point I have only dealt with kid-rearing from a general point of view, but I will now go more into detail.

If one is too busy to hand rear, the matter will need little interference from the owner. Just leave the kid with its mother to take milk when it wants it, remembering to milk the dam every evening, as the kid will not take all the milk secreted, and to leave the udder partially full of milk is a sure way to diminish the supply.

When as young as two weeks old a kid will begin to nibble a little hay or grass, and should be gradually accustomed to this practice, and should also be encouraged to drink water. At three months weaning may take place Begin by separating the kid for a few hours daily from its mother, gradually lengthening the intervals, until in the final stage it is only allowed to take milk once a day. Bran and middlings and a little ground oats can be given twice a day, and as much green stuff and hay as the kid will eat.

As with most young creatures, digestive trouble is the trouble most often met with, and it is first indicated by an attack of scouring. This symptom should never be neglected. The best treatment is change of diet, withholding any ingredient that may be suspected as causing the trouble. Cold may, in some cases, be at the root of the trouble, and if this is so, the animal should be kept in warm quarters until the attack is past and the weather fit to allow outdoor exercise.

Hand-rearing is, in some cases, a necessity, as, for instance, when a kid is bought soon after birth. In these cases efforts should be made to induce the vendor to keep it with its mother for a fortnight, as after that time it is very easy to rear on a bottle, especially if goat's milk is available, though there may be some patience required at first to induce the kid to take milk from a bottle.

An ordinary baby's bottle fitted with a rather

(Continued at Foot of Column on Page 232).

The Cure and Prevention of Roup

By ALBERT H. BRAIN.

EXPERIMENTS WITH CHLORINE GAS, ETC.

The go-ahead methods of investigational work by poultry experts in America have given some good results in testifying to the value of chlorine gas as a cure for roup and associated ailments.

It will perhaps be interesting to many readers to know that this method has been tried with varying success on affected flocks in this country during the last twelve months. Having been forced through circumstances to study the peculiarities and diversions of that terrible scourge, Roup, the bane of the poultryman's existence, the test of chlorine gas came within my radius of use more than a year ago, and with many people is probably worth a trial.

When speaking on Roup some three years ago, at the Harper Adams' College, I briefly outlined the value of chlorine disinfectants there, particularlry mentioning the one, Di-chloramine T., which had given considerable benefit. The difficulty of application, however, made it difficult to use.

To my idea the best and easiest method of tackling an outbreak is to adopt mass treatment either by gas or water medication. To-day I am solely in favour of the latter for general use, but under certain conditions would not hesitate to use chlorine gas, which has proved successful in many cases, and which I propose to speak of here.

Chlorine gas is but another form of introducing chlorine into the bird's system, and accomplishes considerable help. Its introduction to a flock suffering from roup, etc., should be by closing up every aperture in the house at night and burning two parts by weight of common bleaching powder to 1 lb. common hydro-chloric acid ; 2 lbs. to 1 lb. of each is sufficient for every 1,000 cubic feet.

The action of mixing the gases causes the action of burning, and promotes the fumes which, being heavier than air, descend to the bottom. It is, therefore, necessary to make the mixture near the roof so that it will thoroughly permeate every cubic foot of the housing.

The cost of chlorine gas treatment is very small, and where large flocks of infected birds are housed it is easy to apply, care being taken to thoroughly seal up every aperture and air outlet in the house while the gas treatment is being given.

In conjunction with this treatment, and on purpose to ensure swift, certain and constant cure, medication of the drinking water should be given, and where necessary the wet mash should be toned up.

The whole subject of roup infection and its development, however, is such a varied one that the circumstances of each individual sufferer is gener-

(Continued at Foot of Column on Next Page).

Correspondence.

CO-OPERATIVE POULTRY PRODUCTS, LTD.

To the Editor of " Eggs."

Dear Mr. Newman,—I am again obliged to you for allowing me the opportunity of replying to Mr. Buchanan's letter.

There is really little to add to what has already been said in my letter which you published in your issue of September 17th.

Mr. Buchanan now acknowledges that provision was made in the Prospectus of Co-Operative Poultry Products, Ltd., for the Society to take up the Marketing of Eggs, and had he been present at the meeting of members in July he would have heard what was said on the subject.

Mr. Buchanan obviously labours under a misapprehension, for there is no diversion of capital, as he suggests.

The main object of C. P. P., Ltd., remains the ame, and, judging by the response of members to he committee's proposals to help them in disposing f their eggs as well as their surplus birds, Mr. Buchanan would appear to be in a minority of one.

Yours sincerely,
P. HEDWORTH-FOULKES,
Chairman of C. P. P., Ltd.

TABLE POULTRY AND EGGS.

To the Editor of " Eggs."

Dear Sir,—Under the above heading in your issue of " Eggs " for September 24th, you have started a ball rolling, which I hope your many readers, who go n for table varieties of fowls, will readily take up to heir own advantage and that of those whose particular business it is to rear and fatten table fowls.

There can be no question, I think, that here is a usiness which is readily divisible, and beneficially so, nto two parts:—(1) Those that keep suitable stock, nd sell their eggs, with a certain guaranteed fertility t a price which pays them better than selling infertile eggs in the market; or (2) Selling day-old chicks irect to the rearer and fattener What the price of uch eggs will be will probably be governed by the aw of supply and demand, but I think that if those ho have suitable eggs to offer will realise that, hilst high prices cannot be obtained for this class f egg, there should, nevertheless, be a fair margin ver and above that procurable for the new-laid egg, nd a further profit might be made by those selling ay-old chicks, whilst, *and this is a point which hould not be lost sight of*, the demand for this class f egg begins *months* before the usual class of hatching egg is required. Thus in the advertisement olumns of " Eggs " for August 6th:—

> HATCHING EGGS.
> " Wanted for early Spring Chicken trade any quantities, from 100-1,000; delivery about October 10th, Light Sussex, Red Sussex or Cross, Houdan Sussex, Bresse Sussex. State price, terms and quantity. . . . . . ."

and this is not the earliest demand, as some are required early in September for the Christmas market.

As you say, sir, a good *first* cross would probably be best: (1) Because of the hardiness and generally easy rearability of these; (2) The very important one of being able to separate the sexes at a day-old, where sex-linked crosses are used.

In making use of any cross for this purpose it is, of course, *absolutcly essential* to avoid any yellow-skinned, yellow-legged fowl, with possible one exception, the Indian Game Cock, crossed with the Silver Dorking, to provide day-old chicks in September for the Christmas market, and even in this case many prefer the Old English Game.

For the Spring Chicken Trade the Light Sussex is easily first favourite, and, crossed with the Red Sussex, gives sexes easily distinguishable at birth, whilst the Light Sussex x White Bresse gives a quickly-maturing fowl, and the Houdan Sussex, Houdan Bresse, or Faverolles-Orpington, which you suggest, are all excellent.

I hope we shall have quite a few letters and expressions of opinions from your readers on this subject, and that in due course the advertisement columns of " Eggs " may be bulging, like the proverbial corn bins of Russia, with advertisements designed to meet the requirements of the rearer and fattener.

" HEATHFIELD."

The Cure and Prevention of Roup.—Continued.

ally different, each lending itself to special forms of treatment that would be more beneficial than others.

There is one thing, however, that we may say to-day, and that is, there is no reason for any poultry farmer to be the victim of the loss and disappointment from this disease as has been the case in years past; for it might be rightly said that, with the newer practical knowledge of roup and associated diseases, their sting is to-day being well-drawn, which holds out new light and hope for many a person, through whose ravages they have been forced out of the business of poultry farming.

We can all now get ready for that burst which must inevitably follow the " Eat More Eggs " campaign.

If I can be of any assistance to you, Mr. Newman, and your readers, it will give me great pleasure to tender my experience.

Before closing let me say that certain indications in the investigations have also brought certain factors to light which insinuate that B.W.D. trouble in chicks is more common from breeding stock who have suffered from roup and not been properly cured; being a disease of the blood it must be treated for such, otherwise any tendency for the bacterial development of B.W.D. in the ovary of a hen is assisted by the pathogenic roup germ in the blood.

Utility Duck Club Notes.

By HUGH B. CARRINGTON.

The so-called summer has definitely departed, and autumn is with us. Judging from previous experience there are two questions which many people are sure to ask me.

The first is: "Why are my old ducks not laying, they moulted in July, and have not started to lay again?"

The second is: "How am I to bring on my young birds to lay?"

The answer to the first question is a little difficult to give—it depends on several things. In my opinion the most important is the strain of duck kept. If the birds really left off laying in July or August, they should, if of good strain, and if they are well handled, be laying again by the time these notes are in print, and, in many cases, long before. Good birds will take a rest of a month or six weeks, and will then start afresh in a marvellously regular manner.

Here, however, a word of warning is absolutely necessary, and I will be quite brutal about it. If you have first-season birds, who in their pullet year have laid upwards of 200 eggs, there is no sense in forcing them to break records, and themselves into the bargain, by compelling an early resumption of egg laying, and then keeping them at it full steam ahead. This applies if the birds are subsequently to be used for breeding. Any such forcing methods are rank foolishness, and from a breeding point of view, it is much wiser to let the breeding stock take things as easily as it will, and, if necessary, discourage laying, so that at the New Year there may be well-rested birds which have not been subjected to any enormous strain to put in the breeding pens.

My advice, therefore is, do not feed too stimulating a diet to your future breeding stock, the chief ingredient in the mash to look carefully at being the fish meal. To such stock there is no sense in feeding 15 to 20 per cent. of fish meal. If just eggs are wanted, the case is different, and it will be worth while to force as many eggs as possible out of the birds by appropriate feeding.

The second question *re* bringing on the young birds, is, in a way, somewhat similar, for if there is any idea in the future of using the youngsters for breeding purposes, it is again most unwise to force them. Young ducks fed on reasonable mashes, such as advocated in the U.D.C. leaflets on feeding, will lay on these, provided—and this is extremely important—they are handled properly.

With the young birds it is of the most supreme importance that they should live an undisturbed life.

The preliminary step is that they should have been already well tamed, for what might cause shocks to wild shy birds, will not affect those who are already tame. In any case, the young ducks should be protected from any disturbing influence, for example, the visits of foxes at night, stray cats, wild dogs, careless strangers, and rampageous, thoughtless children, may all have a disastrous effect on laying.

Handling the birds should be avoided as much as possible. On no account should they be chased about or moved from house to house and pen to pen at this critical period.

Lastly, let them feed as late as possible in the evening, and let them eat themselves really full. They will sleep far better and more quietly if their crops are full up than they will if only partially satisfied.

That is all there is space for in the way of practical duck-keeping in this month's notes. If fuller information is needed on feeding and management, I can only repeat that readers should write for the U.D.C. leaflets.

DAIRY SHOW.

May I remind readers that the U.D.C. Stand is No. 219 in the East Gallery. It is hoped that all members and any others interested in ducks will pay the stand a visit.

The Annual General Meeting is on Wednesday, October 22nd, in the Club Room, at 2.45 p.m., when a large gathering of members is anticipated.

Please make a special note of the following, and draw the attention of friends who have not yet become members of the U.D.C. to it.

CHEAP SITTING EGG SCHEME.

In order to popularise duck-keeping and to encourage beginners, the Council of the U.D.C. is offering a number of sittings of all the most popular breeds at very low prices.

These sittings are being presented as gifts to the Club by many of the very best and most noted breeders in the country, and the opportunity of securing a sitting should not be missed by anyone anxious to make a good start. Sittings may be booked on the stand, where full particulars of the scheme may be had.

It is a genuinely unique chance, for those booking these high-class eggs will not only do so at a cost far below that they would have been charged by the breeders if they had ordered them direct, but they will—if they become members—have the opportunity of learning from the Club literature how to incubate, rear and manage the resulting stock.

There is not, of course, an unlimited supply of these sittings, and therefore applicants are advised to make the U. D. C. one of their first ports of call on reaching the Dairy Show.

GOAT-KEEPING AND POULTRY.—Continued.

large rubber teat is a good instrument for the purpose, though an ordinary quart bottle can be used, but it is not so easy to clean, and cleanliness is of great importance here. At first four feeds a day should be given, at each of which about half a pint will be taken, and in a fortnight's time the intervals should be lengthened until only three meals a day are given. It is easier to give too much food than too little in the early stages of a kid's life.

If goat's milk cannot be procured, cow's milk can be used, but this must be diluted. Milk should not be given cold to a kid, but raised to the temperature of newly-drawn milk; if heated much above this, scouring will take place. Warm, but not stuffy, quarters should be provided for a kid, and a shelf raised 1½ ft. from the ground is often preferred to a bed of straw. A good lump of rock salt should be within reach.

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Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

H. L. (Brentwood). The blood in the excreta is probably due to an excess of fibre in the mash. If you had sent particulars of your feeding it would have been possible to have advised you, now I can only give you a possible cause. (2) Scaly legs is not inheritable, some birds are immune; it is always more prevalent in sandy soils. It is due to a parasite, and not to particles of grit or sand getting under the scales. Scrub the legs with warm soapy water, then apply a mixture of equal parts linseed oil and paraffin. (3) The hen appears to be suffering from cloacitis. I hardly think she is worth treating, but you might try washing the vent inside and out with some astringent, such as alum and water or tannic acid, or even strong cold tea, and then dress with carbolised oil; in addition give a teaspoonful of olive oil night and morning.

H. B. B. (Worcester). Explain why no blue breed ever breeds true? and you give as an explanation that blue is but a dilute black, and the absence or presence of the black pigment, or the degree in which it is present, determined whether the chick shall be black, white or blue. Mendel's law explains it in this way: Blue is the product of black and white; the germ cells or gametes of the black and white are segregated; either the one or the other may be given off by either parent. When a black gamete meets another black gamete in the opposite sex, the result is a black zygote, which develops into a black chick. When white meets white the progeny is white; when black meets white the progeny is blue. If the blacks are mated together they will produce all blacks. If the whites are mated together they will produce all whites. The blues will behave in the same way as their parents. (2) In the Black Orpington, the Black Cochin was introduced; that explains the soft feather; in the Australorp the cross was with the Croad Langshan.

S. T. (Shrewsbury). You are feeding too much grain in the morning, consequently the consumption of mash is too small. You must alter this as it is very necessary that the birds should have more protein food. Give a small scratch feed in the litter as early as possible, say one handful of kibbled maize between every three birds; half-an-hour afterwards open the mash hoppers, and do not give any more grain until half-an-hour before the birds go to perch, then a handful each of kibbled maize and wheat equal parts also in the litter; increase the meat and bone meal in the mash to one pound, and add half a pound of soya bean meal. The sample sent is a very good one. This should effect an improvement. The whole trouble is due to a deficiency of protein; that is very seldom the case. (2) You will not get 100 pullets by incubating 240 eggs. It would be safer if you were to calculate on one pullet reared to maturity from every four eggs incubated. You say your friend says he is sure you can do it, but that, perhaps, he is optimistic. Yes, I should say so. You know the dividing line between the optimist and the cheerful idiot is very narrow. Suppose you hatch 80 per cent. of your eggs, which would be rather extraordinary, you have to allow for 50 per cent. cockerels, and 10 per cent. would be rather a low mortality to count on, but perhaps your friend has bought a sexometer?

G. W. P. (Abbey Wood). The No. 1 sample of middlings at 13s. 6d. per cwt. is almost equivalent to a low-grade flour. It is quite satisfactory. No. 2 bran is of the very poorest quality, and unsuitable for a food. The dried yeast is a fair sample and dear at 23s. 6d. cwt. If you bought it through the S.P.B.A. you could get a better sample at a lower price. The broad bran is of average quality, and I think it dear at 12s. The S.G.O. are not a particularly good sample, and are not "Sussex" ground; they appear, too, to contain a certain quantity of barley. You should not be paying 17s. 6d. for such poor stuff when the pure article is obtainable within a few miles of you at a lower price. The No. 2 middlings at 11s. cwt. contain a very high percentage of bran. The maize gluten is a very inferior sample, containing a high percentage of maize offal, and it is this which I suspect is scouring your birds, and I would not advise you to use it. I have said in "Eggs" so often of late that many samples have been found to cause injury to the birds. I do not like the sample of maize meal either. It is probably one of these two foods which is causing your birds to scour. The fish meal seems quite pure. I think your best plan will be to make your mash now of: 2lbs. bran, 4lbs. No. 1 middlings, 1lb. S.G.O., 1lb. plain maize meal, ½lb. dried yeast, and ½lb. fish meal. If your birds are short of green food during the winter months you must replace 1lb. of bran with one of good alfalfa meal. I am nearly sure that the trouble arises from either the gluten feed or the maize meal. You will get just as good results on dry mash, both in production and development, provided you are observant, and learn how to adjust the mash to the birds' requirements. I think the records which we have given in "Eggs" of late should prove this to you conclusively. If it will still further reassure you I may tell you that, when lecturing at Liverpool last week, a member of the audience said that on the formula which I have just advised, his flock averaged over 190 eggs per bird As to the question of grain, give a small handful as a scratch feed in the litter early in the morning, and all your birds now will require is a good handful equivalent to about two ounces in the evening, as the last feed half-an-hour before they go to perch. This should be of three parts kibbled maize and one wheat.

M. B. S. (Chalford). I gave the best wet and dry mash combined in "Eggs" only fortnight ago, but I will repeat it again for your benefit:—1lb. bran, 1lb. alfalfa meal, 4lbs. fine middlings, 1lb. maize meal or barley meal, 1lb. S.G.O., or biscuit meal, ½lb. dried yeast, and ½lb. fish meal or meat and bone meal. Grain feed: Two parts kibbled maize, one small red wheat, and one good white oats. If you want to supplement your dry mash with wet mash, then mix a little of his with cold water, and feed it as an additional feed. I am very pleased that you appreciate "Eggs" so much, and think it is by far the best utility paper on the market.

"Devon" (Starcross). No, it is not necessary for this year's pullets to have cockerels with them in order to ensure good fertility when being used as next year's breeders. Quite the reverse is the case. Mate your pullets about ten days before you require eggs for incubation. You ask me if I would advise any alteration in your feeding because your farm is very exposed, but at the same time you do not tell me what your feeding is. Of course, if there is a great waste of bodily heat owing to exposure to cold winds, it will be necessary to meet this as far as possible by feeding foods which will supply the fuel. In that case plenty of maize would be better than anything else. For example (I am writing now of laying pullets), on an exposed farm like yours, I should, if the mash were now, say: 2lbs. bran, 4lbs. middlings, 1lb. S.G.O., 1lb. maize meal, and 1lb. meat and bone meal or fish meal, replace the S.G.O. with another part maize meal, and feed maize as the principal grain—of course, in its kibbled form. You are wrong, under the circumstances, in replacing the wheat with oats. It would have been much better to have used maize. No, I would not drop the morning scratch feed during the winter months. On the contrary, I would give it to the birds Nothing will stimulate them more than vigorous scratching directly they come off the perch, then give the remainder of the grain feed in the evening.

"Incog" (Crumlin). You say you have used my formula, with the addition of barley meal, and ask if it will make any difference if you stop the barley meal. Well, it seems to me that you are stopping at the wrong time of the year. If this mash has given good results, with the barley meal, and the birds have not become overfat, then it would be unwise to discontinue it. These are matters in which you must largely judge for yourself. Examine the condition of your birds, and if they are in an overfat condition, then omit the barley meal. There can be no hard and fast rule for feeding. A good fattening mash for birds kept in fattening coops would be: Two parts middlings, one ground oats, one barley meal and half meat and bone meal. If you can mix this with sour skim milk, and give it twice daily, you could omit the meat and bone meal, and the results would be very satisfactory. As the last feed give either boiled rice or wheat. You must take care to keep the birds' appetites going, and it would be wise to remove whatever food is left after it has been before them about a quarter of an hour. If the appetite shows any sign of falling add a little dried yeast to the mash. With the dry mash formula always before the birds, it is really absurd to give wet mash morning and evening. If you wish to give wet mash, the better plan would be to give a small grain feed in the morning, say one handful between every five birds in the litter, leave the dry mash hoppers open all day; at mid-day give about one ounce of the mash, moistened with cold water, and give the remainder of the grain feed at night, say about 1¾ ounces each.

"Rhode" (Sawbridgeworth). Please refer to reply to "M. B. S.," above, in reference to feeding for your six R.I.R. hens with a cock. Your present method of feeding is unsatisfactory. Give them a small handful of wheat or kibbled maize in the morning, directly they come from the perch. As you have been feeding wet mash it would be better to use the mash given above as a wet one. This should be given about nine o'clock, and give them a handful each of equal parts kibbled maize and wheat about half-an-hour before they go to perch at night. As to the quantities of mash, weigh them up about 2½ozs. each before mixing with water. You know the "handful" differs very considerably, but you must learn to observe the quantities to be fed. If the birds eat it ravenously you could give them a little more, but if, on the other hand, they leave it, reduce the amount. As you have plenty of green food all the year round it will not be necessary to use alfalfa meal in the mash given above. You could replace this with an equal quantity of bran.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000- hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex.

The Financial Year began on 1st September.

Some Problems in Poultry Breeding.

DR. CREW'S PAPER ON SEX AT THE MIDLAND CONFERENCE.

Dr. Crew said he intended that day to deal with a very interesting and a very definite practical problem to the breeder—that of the control, or the possibility of control, of the sex ratio. They would all agree that to the egg farmer it was of very considerable importance if he could produce a decided preponderance of females in his hatches. The fowl had not been used to any extent in the elucidation of this problem, but the fowl was a very admirable material for experiment; but he would like to make the confession that there was not a man who had spent his youth in achieving the scientific knowledge and the scientific equipment necessary and at the same time had equipped himself properly for the conduct of experiments dealing with the sex ratio and the control of eggs. I can buy and run an incubator, he said, and can get a certain hatch, but many of the eggs which do not hatch may be infertile; though, on the other hand, the non-success may be due to the lack of any knowledge of incubation. As a consequence, one does need the closest co-operation between the experienced practical breeder and the professional scientist. I am suggesting the only difference between the professional biologist and the practical poultry-keeper is that the scientist keeps fowls, and, in the case of the breeder, the fowls keep him.

The sex ratio is the numerical proportion of the males to the females in the population, and if there are far more males the ratio is said to be high, and if more females the ratio is said to be low.

For purposes of argument there were three stages of the sex ratio—primary, secondary and tertiary, and he reckoned this in the case of the fowl as the time of fertilisation, the time of hatching, and the adult stage of maturity. Usually they referred to the secondary stage, the relative number of males to females born per 100, and it was an interesting fact that this sex ratio varies very considerably under all sorts of circumstances.

He regarded it as a proved fact that sex is determined at the time of fertilisation. Every individual, bird or human, has its origin in the union of two simple cells, the egg of the female and the sperm from the male. At the time when the sperm fertilises the egg, the sex of the individual which is going to arise from that is determined; not irrevocably in every case, but as a general rule, a determined female at the moment of fertilisation will become a functional female. He could quote proof after proof, and, though they could not quote the fowl every time, they could argue from analogy. There is one definite fact in the case of the fowl which will drive you to the conclusion that sex must be determined at the moment of fertilisation—that phenomenon known as sex-linkage—for in no other way than by accepting the fact could they explain sex-linkage. The mating of the black cock with the barred hen produces offspring which in respect of plumage characteristics the sons take after the mother, and the daughters after the father. That admits, with other facts, of no other explanation than that the hen lays two sorts of eggs as far as sex determining goes. There must be an egg which when fertilised by any sperm will inevitably become female, and also an egg which in turn must develop into an individual of the opposite sex. This is fact. The mechanism of sex-determination has been disclosed perfectly clearly—that the hen definitely lays two sorts of eggs, one which when fertilised becomes female and one male; and the cock elaborates only one sort of sperm. If the two sorts of egg elaborated by the hen are elaborated in equal numbers, and there is no reason why they should not be, and if both equally exert an attraction for the sperm, then the sex ratio among poultry should be as 1 to 1. For every hen there should be a cock in the chicks, making due allowance for deaths; but we know that does not coincide with our experience, and we cannot guarantee to get equality of sexes among chicks.

Dr. Crew had thrown on the lantern screen a number of diagrams illustrative of certain known facts, including the experiments with the drosophila fly in America, and he went on to show that in a certain investigation where the primary sex ratio was 120 males to 100 females the pre-natal death rate of the male was such that at the time of birth the 120 had been reduced to 103, and he pointed out it was far more difficult in the case of mammals to produce male offspring. In the case of the fowl, on the other hand, it is definitely the fact, along the same line, that it is far more difficult to hatch a female chick than a male chick.

The sex ratio varies with the season and period of the year, as he had proved from various records kept of pedigree dogs.

In the moth, sex ratio could be altered by exposing the eggs during their ripening to different temperatures. By manipulating the temperature you can manpulate the distribution of the "X" chromosome, and consequently thereby control the sort of egg you are going to get ultimately. In the case of the moth they had actually disturbed the distribution of the sexes by removing the male from the female for a certain time, and according to the interval of time which elapsed the sex ratio altered, and a greater proportion of male eggs were laid and with an interval of 80 hours 100 per cent. males will be laid.

After explaining that with certain kinds of stock individuals could be picked out which produced more commonly males than females, the speaker went on to state that the pre-natal death rate was an extremely common thing, but the ratio could be found in the case of mammals, but it was not so with the fowl owing to the infertiles and dead-in-shell. He maintained that the mass of infertiles are not really and actually infertile at all, but the result of the very early death of the hetero-gametic female. The majority of the dead-in-shell he knew were female. It was far more difficult to hatch the female chick than the male chick. Sex is determined by sex-determining factors, just as much as is determined the colour of the hair, skin, etc. Sex is a character borne by the individual, and it is determined by precisely the same sort of mechanism as the characters which are not sexual. It was determined by the balance of a great number of factors, and the balance is less stable in the hetero-gametic sex. There are lethal characters, which may be expressed early or late, but are permanently exhibited by the individual, in which the balance is less stable. There you have the explanation of the disturbance of the sex ratio, the selective elimination of one sex rather than the other. The eradication of such individuals is not a problem for the veterinarian but for the geneticist, and the only possible way is to spot which individuals are responsible for the dissemination of the lethal characters to the stock and effect their removal.

How near were they to the realisation of their dream! They must remember, in the case of pigeons, it had been possible to define between the two sorts of eggs, and in mammals between the two sorts of sperms, and to separate the two sorts of sperm they would see how near their dream was to coming true. For many years now in Russia, where good live stock was scarce, they had concentrated the sires at central stations and dispatched the seminal fluid for the practice of artificial impregnation all over the country. The separation of the male and female sperms had been done by swimming them across an electrical field, one type, the X, travelling at a different rate from the Y, so that ultimately they got two clumps of sperm, and it was possible theoretically to bed them out, and you had the sexes controlled in the case of the mammal.

In the case of the fowl what was needed was to interfere with what would be the ordinary ripening process of the egg, and so get either more X or Y-bearing eggs. "We are feeling our way towards this," remarked Dr. Crew; "by altering the rate at which the individual consumes its energy, you can affect the production of these sorts of egg." It is very, very vague and unfinished, but there is a definitely possible result that by the manipulation of your diet, by controlled husbandry, you may be ultimately able to get a preponderance between the sexes of one kind more than another, but whether it will ever be a practical proposition remains to be seen. In the case of the mammal it is eminently practicable. In the case of the fowl what was wanted was, by most intimate observation of the stock, to pick out those individuals which habitually produced one sort rather than the other kind of egg. Then find out whether it is due to an accident of development or is hereditary, for nothing is known of that.

(To be continued.)

(Continued at Foot of Next Column.)

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Loxley, A. Cyril, Hursley Cottage, Four Marks, Alton, Hants.
Cunningham, Chas., Poultry Dept., Downie Park, Kirriemuir, Forfarshire.

Blunt, Lieut.-Colonel A. S. J., Cross Lanes Fruit and Poultry Farm, Chievely, near Newbury, Berks
Patrick, Baden, Astley Court Poultry Farm, Corley, near Coventry.

Speak, E. W., Hill End, Trawden, Lancs.
Daft, Miss B. G., The Laurels, Walton-le-Wolds, near Loughborough.

Threlkeld. S., The Grove, Watford.
Barley, A. C., 150, Townsend Road, Southall, Middlesex.
Laurens. P. C., Eagle House, David Place, St. Heliers, Jersey.
Ogilvy, D. S. Widderburn, Millfield, Cotleigh, Honiton.
Campbell, C., Westercraig, Brownside Road, Cambuslang.
Hall, Wilfrid, 50, Pickup Street. Blackburn, Lancs.
Marsh, Joseph, Middle Warble Hey Farm, Mellor, near Blackburn, Lancs.

Broadbent, H., 127, Yews Hill Road, Lockwood, Huddersfield.
Westron, Colonel G. F., Homanton House, Shrewton, Wilts.
Mortimer, A. E., 1, Fairfield Terrace, Marsh, Cleckheaton.
Cheek, Wm. E. H., "Mayfield," Plumberough Road, Hockley, Essex.
Wrigley, J. E., 43, Huddersfield Road, Crossbank, Waterhead, Oldham, Lancs.

Brock, Maurice, Southstole Poultry Farm, Oxon.
Wilks, Miss E. B. A., Montrose, 5, Dudley Park Road, Acocks Green, Birmingham.

Rickford, E. A., 66, Jutson's Lane, Romford, Essex.
Hawkesworth, J. H., Willowdene Poultry Farm, Riffa House, Pool, near Leeds.

Waddington, Fred, 17, Alma Terrace, E. Morton, near Bingley.
Stott, Mrs. M., Hollings Farm, Steeton, Keighley.
Newiss, E. F., 14, High Spring Road, Keighley.
Culley, E., "Lyndene," Hamstead Road, near Yarmouth, I.O.W.
Low and Buck, Messrs., Hill View Poultry Farm, Costessey, Norwich.

Robson, Geo., 46, Warmsworth Street, Denaby Main, near Rotherham.

Baxter, Shipley G., Yew Tree Close, Ashover, Derbyshire.
Chouler, C., The Elms, Hartwell, near Roade, Northampton.
Mounsey, Mrs. W. A., West Hendon House, Sunderland.
Fenn, A., "Selma," Elm Park Road, Pinner, Middlesex.
Darby, J., The Orchard, Kirton, Boston.
Cruikshank, W. L., Schoolhouse, Premnay, Insch, Aberdeenshire.
Taylorson, M., 22, Sefton Road, Walton, Liverpool.
Whitfield, W., 5, Linner Cottages, Halebank, near Widnes.
Hunter, Mrs. C. L., Valley Farm, Worlingworth, Framlingham, Suffolk.

Graham, T. V., Graham's Poultry Farm, Woodvale, Southport
Hacksley, Geo. Wm., 18, Albert Street, Hucknall, Notts.
Dennis, Henry, 9, Duke Street, Hucknall, Notts.
Miller, Mrs. S. R. Christie, Clarendon Park, Salisbury.
Bruce, N. Murray, The Manor House, Clarendon, Salisbury.
Bradbrook, Robt. Stan., Hill Cottage, Sawbridgeworth, Herts.
Hawkins, Mrs. Nelson, The Cottage, Swanborough, Lewes, Sussex.
Watson, Miss I. M., Lurdenlaw, Kelso, Roxburghshire.
Bass, H. J., 42, Eastfield Road, Peterborough.
Headrick, W. S., Redlairdston, Bucklyvie, Stirlingshire.
Ames, W. R., The Gate Inn. Ifield, Crawley, Sussex.
Jackson, G. H., The Copse, Worthing Road, Southwater, Horsham, Sussex

Whittaker, M., 13, Crabtree Street, Colne, Lancs.
Wiggins, A. L., 5, Windmill Road, Headington, Oxford.
Smith, C. A. Howes, The Yews, Eckington, near Sheffield.
Broadway, Mrs. K., The Black Swan Inn, Thornton-le-Moor, Northallerton.

Broom, G., Oldroyd Utility Poultry Farm, Todmorden, Yorks.
Adams, David C., Deerhill P. Farm, West Hayley, Worcestershire
Brownjohn H., Kelmscot, Pilling Lane, Preesall, near Fleetwood
Stewart, W. R., Skilganabon, Ballyclare, co. Antrim, Ireland.
Stowe, C. R., Tabley, Wadhurst, Sussex.
Amey, Miss G. D., Beech Lodge Farm, Beech Hill, Wadhurst, Sussex.

Courthope, Miss H. B., Whiligh, Sussex.
Harkness, M. A., The Rev. John, The Manse, Auckindoir, Rhynie, Aberdeenshire.
Larking, Basil R., R.I. Red Farm, Wellpond House, Standen, Herts.
Milnes, W., "Oakroyd," 59, Pollard Lane, Bradford, Yorks.
Smith, Herbert, Hill's Poultry Farm, Lydgate Lees, near Oldham.
Dawkins, Geo., The Lodge, St. Petrox, Stackpole, Pembroke, S. Wales.
Brown, Cyril, Queen's Terrace, Newton, Poulton-le-Flyde.
Webster, Richard, Red Delph Farm, Rainford, near St. Helen's, Lancs.
Wells, Mrs., Marine House, Hornsea, East Yorks.
Broadbent, Miss H. V., The Oak Farm, Gislingham, Eye, Suffolk.
Hunt, Wm. Aldington, Sunnycroft, Forest Corner, Ringwood, Hants.
Meanwell, E., Saltfleetby, St. Peter's, Louth, Lincs.

Scientific Poultry Breeders' Association.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the S.P.B.A. will be held in the Club Room at the Dairy Show on Thursday, 23rd October, at 11.30 a.m. The President, Mr. J. G. Kitson, will preside.

The following nominations have been received for the Council :—

R. Fletcher Hearnshaw, Fox Hill, Burton Joyce, Notts.

F. W. Wait, Burton Joyce, Notts.

E. Bostock Smith, Heaselands, Haywards Heath, Sussex.

No election will be necessary.

The following resolution has been received from Major H. C. Few :—

> **"The time has now come when this Society should pay the out-of-pocket expenses of the members of the standing committees, and any sub-committee that may be called together to carry on the business of the Society."**

The S.P.B.A. Stand will be in its usual position at the Show. The President, Secretary and other officials will be in attendance the whole of the week, and members will receive a very hearty welcome.

OUR WONDERFUL PROGRESS.

During the month of September 232 new members were elected. This is nearly double the number as compared with the corresponding month last year, and it is mostly highly gratifying to the Council, as, indeed, it must be to all members of the Association.

Our progress has been steady and continuous from the first, and we are now in a very strong position. All we have to avoid is the "swelled head," for great success sometimes makes us a little "top-heavy." If we continue steadily with the work there will never be any anxiety as to our future.

THE LIVERPOOL BRANCH.

A well attended meeting of the Liverpool Branch of the S.P.B.A. was held in the Common Hall, on Saturday, 27th September, the President of the Branch, Mrs. Hodgins, being in the chair.

Mr. E. J. Meekings read a most interesting paper on "Planning a Poultry Farm," which was highly appreciated, and which led to an interesting discussion.

Mr. Tom Newman, after describing the work of the S.P.B.A., and telling his audience of the loyalty and enthusiasm of its members, remarked on the wonderful increase in membership, and this in spite of the fact that they did not go out into the highways and byways to find members; they came to them on the recommendation of their own members, and there was no more satisfactory tribute to a Society than the fact that its own members were continuously endeavouring to bring in others. That showed that they were satisfied and appreciated the work which was being done. Mr. Newman then read a paper on "Some Everyday Questions," after which there was a long discussion, and Mr. Meekings and he proceeded to answer questions for the rest of the evening.

The Secretary, Mr. R. J. Thomas, informed the meeting that the Branch was in a most satisfactory condition, but they still hoped to get new members and greater support. At present they numbered 98, and had a balance in hand of some £30, which was very satisfactory. Mr. J. Wrennalls had promised to come and lecture to the Branch on Wednesday, 8th October.

A vote of thanks to the speakers was moved by Mr. Currie, and carried unanimously. Mr. Newman, in reply, thanked them on behalf of Mr. Meekings and himself, and said it was a great pleasure to both of them to come to Liverpool again, and congratulated them on the fact that they were to have the pleasure of listening to Mr. Wrennalls next week, for there was not a more competent poultryman in the country, and they should be looking forward to a great treat.

OUR FRONT COVER.

When visiting the Misses Ransford's farm on one occasion, a White Leghorn pullet was expected to celebrate the event by laying her 300th egg. As a matter of fact, she did it to celebrate our departure.

That hen was "Pensford Promise," and she had the wonderful record of 590 eggs in two years. Her daughter, who is depicted on our front cover to-day, is hen No. "12," winner of the Gloucester Laying Test, Single Pen Section, with the remarkable record of 265 first-grade eggs in 48 weeks; the site of this test is very exposed, 600 feet above sea-level. She has now laid 283 eggs to date in under twelve months.

The Misses Ransford also secured third place in this section of the test, with a daughter of "Pensford Progress," whose record was 236 first-grade eggs in the 48 weeks, and 254 to date. Her dam was another of these "persistent" layers, her record being 856 eggs in four years. A very pleasing feature of this strain is that it demonstrates very clearly, that high fecundity and size of egg *are not incompatible*, as has been so often asserted.

In the Derbyshire four months' winter laying test the Misses Ransford obtained certificates of merit for breed characteristics, and two monthly ribbons for highest number of first-grade eggs.

Two pullets sent to the Indian Laying Test each won first-class certificates, and high positions have been won in the various laying tests by pullets bred from stock supplied from the Perseverance Poultry Farm.

That the strain has a wide reputation is evident from the fact that birds have recently been exported to Australia, India, South Africa, the Canary Islands, and a pen has been sent to the Secretary of the Indian Laying Trials.

THE

National Poultry Council Meeting

AT WYE COLLEGE.

The Quarterly Meeting of the National Poultry Council was held at the South-Eastern Agricultural College, Wye, Kent, on Wednesday, October 1st, the President, Mr. T. Newman, being in the chair.

A kindly welcome was extended to the delegates by the Chairman of the Governors, who said how pleased they all were that the Council had been able to accept the invitation. They were extending their poultry plant very considerably at Wye, and were very desirous to co-operate as far as possible with those engaged in the industry, and to assist it in every way. He hoped the delegates would visit the poultry plant and see how they proposed to extend. The experiments in fattening in connection with the N.P.I. scheme were being conducted on land near by, and he was sure they would find much to interest them there. At Wye College they were greatly interested in the progress of the poultry industry, and intended doing all they could to further its interest.

Mr. Newman thanked the Chairman of the Governors, on behalf of the delegates present, for the kindly welcome they had given them. It gave them very great pleasure to be able to be in a position to accept it. They much appreciated the fact that the Agricultural Colleges were doing all they possibly could to further the interests of the industry. Their co-operation was very desirable, as it was evident that with the extension of the industry competition would become keener, and with the help from the Colleges and the fact that they were sending out well-trained students, they would be in a much better position to fight the competition. On behalf of the delegates present, he again thanked the Governors for the welcome extended to them.

Apologies for non-attendance were received from: R. Fletcher Hearnshaw, J. Meekings, Principal Milburn, Mr. Parton, Col. Sandbach, E. L. Williams, Mr. W. J. Golding, and Mr. A. T. Walker.

The President said that they would all regret to hear that Mr. Walker was still seriously ill, and he proposed that a message should be sent him, expressing the great regret and sympathy of the members present, and their good wishes for his speedy recovery. This was agreed to unanimously.

Financial Statement.—The Treasurer, Mr. A. H. Brownson, submitted the report of the Finance Committee. He said that he was pleased to announce that all the last year's patrons had renewed their subscriptions with the exception of 12, and he had also secured others. Financially they were far from being in a strong position, and he urged members to do their best to secure patrons. He read a letter from the Blackburn Society, forwarded through Mr. E. Collier, Secretary of the Lancashire Federation of Utility Poultry Societies, in which the Secretary stated that members desired to forward a cheque for two guineas as a mark of their appreciation of the good work done by the National Poultry Council. Mr. Brownson remarked that it was very satisfactory to him to have such a letter of appreciation and such a handsome subscription from a comparatively small Society.

The President said he was pleased to be in a position to announce that the appeal to members of the S.P.B.A. had been responded to in their usual generous manner, and the Council would shortly be in a position to hand over a cheque of at least £200 towards the general funds of the National Poultry Council. This announcement was received with great applause.

Affiliations.—The following Societies applied for affiliation, and were accepted:—The Keighley and District Branch of the S.P.B.A.; London Wholesale Poultry and Game Salesmen's Association.

Election of Patrons.—Mr. H. Smith, Valley Poultry Farm, Ivy Hall, Lowshire Green, Sheffield; Mr. H. Alderson Smith, Eastfield Model Farm, Braunston, near Rugby; Mr. Michael P. Phelan, Cleave Barton, Northam, Devon.

Legal Defence Fund.—The Secretary, Mr. Edward Brown, informed the Council that they had a most satisfactory report to make in respect to the claim of Mr. A. J. Bell, of Longwick Poultry Farm, Princes Risborough, Bucks, against the Bucks Staghounds Hunt. Mr. Bell had reported to the Council that damage had been done to his fencing and stock by the Hunt, and his application for compensation had been met with discourtesy, with an offer of £5, which was totally inadequate. The Council's solicitors had been instructed to act, and as a result the Hunt had paid the sum of £20 as compensation. Several other cases were considered in reference to Income Tax and Assessment for Rating, and instructions given as to what action should be taken or advice given.

Messrs. Chivers and Son wrote, asking for support in an action with which they had been threatened. They had supplied 200 sitting eggs to a gentleman who had complained that the chicks hatched from them had died from Bacillary White Diarrhoea, had infected other stock, and he claimed the sum of £95 as contingent loss. Messrs. Chivers said that they had hatched chicks from eggs from the same stock themselves, had supplied other breeders with eggs from the same stock, and this was the only complaint they had received. There had been no outbreaks of B.W.D. on their own farm. They asked the Council to assist them with evidence when the case came on for hearing. The

Executive Committee had appointed two members who would be prepared to give evidence in favour of Messrs. Chivers' case, and they would also take other action in the matter.

The Secretary reported that since the last meeting forty-five letters had been received for Income Tax.

Insurance of Fowls.—On the question of the Insurance of Fowls against losses through foxes, death, etc., the President announced that the Council were not in a position to make any recommendation.

Eggs and Poultry Consumption Committee.—Mr. E. Bostock Smith, Chairman of the Committee, said that they were very desirous of pushing on as far as possible the proposed "Eat More Eggs" campaign. He outlined the proposals of the Committee in his report. Of the value of such a campaign to the industry there can be no doubt. He exemplified this by mentioning the advertising of Bananas, Currants and Potatoes, and other articles. In the case of Tomatoes, the advertisement had been such a success that it had been thought advisable to stop advertising for a time, owing to the increased demand, resulting in the rise in price, which might have been prohibitive. Their chief difficulty now was finance, and they sought the authority of the Council to make an appeal for £500 for the preliminary expenses. The adoption of the report was seconded by Mr. A. H. Brain, who had been to great trouble to obtain posters and suggested means of advertising for the approval of the Council. Mr. Stanley Street-Porter and Mr. J. H. Dowden spoke in favour of the scheme. The report was adopted.

Laying Trials.—Dr. Crowther submitted the report of the Laying Trials. The recommendations that had been made were :—

"That the National Poultry Council undertake the recognition of Laying Trials, and publish lists of those which are approved by it after examination of the regulations and methods of these, such recognition to require that the entire control shall be by a public authority, institution, or society, and not by any one working for individual profit."

Rules.—A suggested alteration in the rules was made on the proposal of Dr. Barrett, of the Swan Agricultural College. After a lengthy discussion the report was adopted on the proposal of Dr. Crowther, seconded by Mr. J. Wrennalls, and it was agreed that for the present the Executive Committee should act on behalf of the N.P.C.

(1) That the National Poultry Council will keep a register of Laying Trials, from which lists will be published by it, that have been approved by it, after examination of the regulations and methods of these, such recognition will require that the entire control shall be by a public authority, institution, society, or other body, and not by any one working for individual profit.

(2) That any Test applying for registration shall pay a fee of £5, such fee in any event to be retained by the National Poultry Council.

(3) That each recognised Test shall pay at the rate of 10s. per hundred birds per annum, which shall be based on the number of birds competing at the commencement of the Test.

(4) That each Laying Trial shall forward to the Secretary of the National Poultry Council, with its application for recognition, a copy of the rules and regulations of such Test before its commencement, and that each subsequent year, as early as possible, any alterations which are proposed for adoption so that these may be considered. Further, that information shall be given as to—

(a) the controlling body with their powers;

(b) particulars of the general character of the financial arrangements made for efficient carrying out of the Test.

(NOTE.—The general opinion of the Committee was that there is no need to deal with the disposal of profits, if any, the educational value being the important consideration.)

(5) That the National Poultry Council shall have the right of inspection by duly accredited representatives at any time subsequent to the receipt of application for recognition. Due notice shall be given to the management of the Test of such inspection. It may require applicants to submit general scheme of houses and runs.

(6) The National Poultry Council reserves the right to withdraw recognition of Laying Trials or Tests at any time. Upon receipt of complaint against the conduct, or management of, at Laying Trials, the National Poultry Council may call upon the management for an explanation. If, after full enquiry, it is not satisfied with such explanation, it may withdraw recognition forthwith.

(7) Returns giving the numbers of competing birds must be sent to the National Poultry Council, together with remittance of the fees due, by each recognised Laying Trial, within one month of commencement of the Trials. If, after due notice having been given, such fees are not paid by the end of Three Months from commencement of the Trials, recognition may be withdrawn and publicly notified.

National Poultry Examination Board.—Mr. P. Hedworth-Foulkes, Chairman of the Board, submitted the report, and he said that the examinations had just been held. There were nine candidates ; unfortunately one had been taken ill during the examination and had been unable to proceed. Five had passed, and he was pleased to say that it was a distinct improvement, as they had all recorded a higher average of marks than in any previous examination. Failures had, as usual, occurred in book-keeping, and in one case in poultry husbandry. Dr. Crowther remarked that he would like the Board to consider what could be done in this matter of book-keeping, and whether some simple system could not be evolved, as this subject appeared to be the bug-bear of all poultry candidates.

Dr. Barrett complained of the preliminary examinations. She stated that, in regard to one pupil of hers, she had not been able to take the examination, although she believed her fully qualified to do so. Dr. Crowther thought the Board might well consider the revision of this part of the syllabus. Mr. Foulkes, on behalf of the Board, said the matter would be given careful attention at its next meeting, and he would communicate with Dr. Barrett in respect to the pupil to whom she referred.

Prices of Imported Produce.—The President said that this had been placed on the agenda under a misapprehension. It did not refer directly to what he meant when he brought the subject up at Salisbury. He had there referred to Mr. Francis' speech, in which he had said that, in spite of the fact that land, labour, appliances and food all cost more than at home, and they were further from the markets, poultry farmers in some parts of America were contemplating exporting eggs to this country. If they were able to do so profitably there must be a leakage on this side, and he thought that, in view of the keen competition with which they were likely to meet, and also the fact that their own profits had fallen somewhat during the past two or three years, it would be a wise plan for the National Poultry Council to appoint a committee of investigation, and he hoped that they would consent to do so.

Dr. Crowther said this was a most important resolution, but he suggested that it would be better, in the first place, if they asked the Ministry of Agriculture to provide them with the necessary information. The Ministry existed for that purpose, and if they supplied the information to the Council they may be able to take some action in the matter. This was supported by Mr. Stanley Street-Porter, and the President suggested that he agreed with Dr. Crowther that it would possibly be the better way. Dr. Crowther's proposal was unanimously carried.

Sale of Eggs by Weight—National Service Poultry Club.—Mr. Alderson-Smith, who represented the club, said that he had received no instructions in this matter, and did not know how to proceed. Mr. Edward Brown said that during his fifty years' connection with the industry this suggestion that eggs should be sold by weight had come up periodically, but it had never received any real support. As there was no resolution before the Council, the matter dropped.

It was decided that the invitation of the Lord Mayor of Cardiff to hold the next meeting of the Council there during January should be accepted.

Mr. E. N. Goode proposed that the warmest thanks be tendered to the Governors of the South-Eastern Agricultural College for permitting the National Poultry Council to hold its present meeting at the College, and also to Principal Wilson and his staff for their kind attention and hospitality to the members of the Council during their visit to Wye, which they greatly appreciated. This was seconded by Mr. J. Wrennalls.

This concluded the business of the meeting.

The delegates visited the College Farm, the Duck Laying Tests, and the N.P.I. Experimental plant for fattening, and were highly pleased with all they saw.

The first visit of the Council to Wye was a very pleasant one, and the hospitality they received from the governors and the attention of Principal Wilson was most highly appreciated.

OUR SPECIAL DAIRY SHOW NUMBER.

Our Dairy Show issue, dated October 22nd, will, as usual, be a much enlarged number, containing amongst many other good things a special supplement by our Editor, Mr. Tom Newman. It will be on sale at our Stand in the Gallery on each day of the Show. Regular advertisers are well aware of what an exceptional "business bringer" our Dairy Show issue is. To those who do not advertise regularly, we would strongly urge the booking of a space **NOW.** The sales always show a large increase; but the rates remain the same, viz., 6s. 6d. per single column inch. "Copy" **must** reach us by first post Friday, 17th inst., at the latest. It is hardly necessary to add that the earlier we receive it the better for everyone concerned.

SECOND MIDDLESEX LAYING TEST.

HELD AT HEARNE HOUSE POULTRY FARM, HAYES, MIDDLESEX.

Report for Eleventh Month.

Light Breeds (Single Birds). 1, J. and A. Moore (B.L.), 204 pts.; 2, J. S. Howarth (W.L.), 190 pts.; 3, Major Kingscote (Anc.), 189 pts.; 4, Roebuck and Illingworth (B.L.), 186 pts.; 5, F. J. Betts (W.L.), 172 pts.; 6, A. W. Brown (B.L.), 149 pts.

Heavy Breeds (Single Birds).—1, Mrs. J. N. Drew (B.R.), 203 pts.; 2, H. J. Veeger (L.S.), 201 pts.; 3, Mrs. M. Rogers (R.I.R.), 193 pts.; 4, W. Measures (R.I.R.), 187 pts.; 5, E. Bland (R.I.R.), 186 pts.; 6, J. A. Howarth (W.W.), 186 pts.

Light Breeds (Pairs).—1, W. H. Hawkes (W.L.), 289 pts. 2, Davey and Son (B.L.), 279 pts.; 3, L. C. Turnhill (B.Min.), 270 pts.; 4, W. Crist (W.L.), 265 pts.; 5, V. J. Hitchings (W.L.), 264 pts.; 6, E. and W. A. Franey (W.L.), 261 pts.

Heavy Breeds (Pairs).—1, A. D. Prince (R.I.R.), 378 pts.; 2, P. E. White (B.R.), 370 pts.; 3, Major G. T. Williams (R.I.R.), 348 pts.; 4, W. Claughton Douglas (W.W.), 344 pts.; 5, E. Bland (W.W.), 335 pts.; 6, G. A. Dawson (R.I.R.), 322 pts.

W. Winch leads Cross Section with 166 eggs.

We are daily having numerous letters asking for entry forms for the 1924-5 Middlesex Laying Test, but we have decided not to run a test. We hope this notice will save our many friends writing for forms, and, possibly, through waiting for our reply, debar them from getting their entries accepted at other tests. I would like to take this opportunity of giving a reason for discontinuing the test next year. It was at the instigation of Mr. Bruce Wilcock (who was then the County Instructor) that we decided to run the test, as it was considered that it would be an asset to the Middlesex Poultry-keepers. The first test was very successful, both as far as the entries and the aggregate performance of the birds entered, in fact without being egotistical, it compared most favourably with other tests. At a conference it was decided to run another test this year with a larger number of birds, and again the entries were very satisfactory, but as far as the entries from Middlesex were concerned, they were practically at a minimum. In other words, local support was a very low percentage of the total entries, and it is for this reason alone that there will be no 1924-5 Test.

(Mrs.) LILIAN SMITH, Manageress.

Thaba 'Nohu, Naze Park, Walton-on-Naze, Essex.
1st November, 1923.

Dear Sir,—I have recently been recommended your paper, "Eggs," by a poultry farmer, and I must honestly say that there is no other poultry paper which is as good as any respect, and which gives such sound advice.

Yours faithfully,
(Signed) JOHN HERRINGTON.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, OCTOBER 3rd, 1924.

GRAIN AND FEEDING STUFFS.—Best dry samples of English wheat are in brisk demand, and prices are firmly maintained, milling samples now averaging about 12s. 3d. per cwt., while for seed samples up to about 14s. 6d. is paid. There are still comparatively few lots of finest malting barley available, and these readily command recent prices, but secondary grades are freely offered and are easier; on the average, however, quotations are unchanged on the week, while grinding descriptions also sell at about late rates. Good supplies of home-grown oats are coming forward, but condition is variable; demand remains strong, however, both for ordinary samples and for parcels suitable for seed, and prices show a general advance on the week. Small supplies of new beans and peas are available. All kinds of imported cereals meet a good trade, and prices are again higher in most cases.

Milling offals are in good request and prices continue to show a firmer tendency. Bran now averages nearly £8 10s. per ton and coarse middlings over £10 10s. per ton, the former showing an advance of nearly 10s. on the week, while in each case prices are about 45s. per ton higher than a year ago. Oil cakes are in fair demand for the time of year, and prices are firmly maintained.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s; Hull, £8 2s; Liverpool, £8 10s; London, £8 10s. Broad Bran: Hull, £9 12s; London, £9 5s. Middlings—Fine (Imported): London, £10 15s; Coarse (British): Bristol, £10 17s; Hull, £10 15s; Liverpool, £10 10s; London, £10 2s. Pollards (Imported): Bristol, £9 5s; Hull, £8 15s; Liverpool, £8 15s; London, £8 17s. Rice Bran: Bristol, £9 2s; Liverpool, £8 15s. MEAL.—Barley Meal: Bristol, £13 15s; Hull, £14; London, £14 7s. Maize Meal: Bristol, £12; Hull, £11 10s; Liverpool, £11 10s; London, £12. Maize Germ Meal: Bristol, £12; Hull, £11 15s; London, £12. Maize Gluten Feed: Bristol, £12; London, £10 15s.

EGGS AND DEAD POULTRY.

A moderate trade prevails for all classes of eggs, and, with best grade none too plentiful, practically all quotations are firmer on the week.

Week-end Prices—Eggs (per 120): British, 24s 0d, 22s 0d; Irish, 20s 6d, 19s 0d; Danish, 24s 0d, 22s 0d; Dutch, 25s 0d, 22s 0d; Russian, 15s 3d, 12s 0d; Belgian, 21s 3d, 20s 3d; Italian. 21s 0d, 18s 6d; Lithuanian, 17s 0d, 14s 0d; Roumanian, 14s 6d, 13s 0d.

Dead Poultry (per lb.): Fowls—Surrey, 1s 9d, 1s 6d; Irish, 1s 2d, 1s 0d; Others, 1s 5d, 1s 2d. Ducks, 1s 2d, 1s 0d. Geese, 1s 3d, 10d.

EGGS.

Per Doz.—Ashford: First, 2s 7d; Second, 2s 5d. Birmingham: First, 2s 2½d; Second, 2s 1¼d. Bridgwater: First, 2s 6d. Carlisle: First, 2s 10d. Chelmsford: First, 2s 9d; Second, 2s 6½d. Derby: First, 2s 3d. Dorchester: First, 2s 9¾d. Exeter: First, 2s 6d. Hereford: First, 2s 2d. Hull: First, 2s 3d. Ipswich: First, 2s 6d; Second, 2s 3d. King's Lynn: First, 2s 3d; Second, 2s 0d. Lincoln: First, 2s 3d. Llandilo: First, 2s 3d. Newport (Mon.): First, 2s 6d; Second, 2s 4d. Norwich: First, 2s 4d. Oswestry: First, 2s 10d. Penzance: First, 2s 0d; Second, 1s 11d. St. Ives: First, 2s 6½d; Second, 2s 5½d. Salisbury: First, 2s 9d; Second, 2s 5d. Shrewsbury: First, 2s 4d; Second, 2s 2d. Skipton: First 2s 3d. Truro: First, 2s 1d; Second, 2s 0d. York: First, 2s 8d; Second, 2s 6d.

FOWLS.

Per lb.—Birmingham: First, 1s 2d; Second, 9d. Derby: First, *5s 3d; Second, *3s 6d. Exeter: First, 1s 5d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 0d; Second,

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 8th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 2d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

MARKET REPORT.—Continued.

*3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 0d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 2d; Second, 1s. Derby: First, *5s 6d; Second, *4s 6d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 4d. York: First, *5s 0d; Second, *4s 0d.

* Per Head.

27th OCTOBER, 1924.

BLUNTISHAM (On the London and North Eastern Railway),

HUNTINGDONSHIRE.

To FRUIT GROWERS, POULTRY FARMERS and Others.

DILLEY, THEAKSTON & READ

Have received instructions to TO SELL BY AUCTION,
At the CORN EXCHANGE, ST. IVES,
On MONDAY, 27th OCTOBER, 1924
Punctually at 3 o'clock in the Afternoon,
A Valuable Freehold

FRUIT AND POULTRY FARM

known as

WOOD FARM

Comprising a Brick and Tiled DWELLING HOUSE, with Offices and Garden adjoining, Convenient Farm Buildings, Excellent Modern and Up-to-date Poultry Houses, and

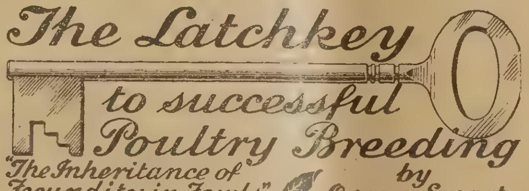
87 a. 1 r. 37 p.

of Land, all adjoining and in a Ring Fence, the greater part planted with choice Fruit Trees.

NOTE.—A large expenditure has been made in planting the above Estate. It abuts upon the High Road, within a few minutes walk of Bluntisham Railway Station on the L. and N.E. Railway, about 4 miles from the important Market of St. Ives, and will be sold with Possession on Completion of Purchase.

Particulars, Plan and Conditions of Sale may be obtained of the AUCTIONEERS, Market Hill, Huntingdon, St. Ives and St. Neots; or of

Messrs. CRANFIELD and WHEELER,
Solicitors, ST. IVES, HUNTS.



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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 15th, 1924.

Editorial.

EARLY MATURITY AND PRODUCTION.

It has often been pointed out in these columns that the early maturing factor is correlated with high fecundity. Pedigree breeders have found it so to their cost, for while it is undoubtedly an economic factor of the utmost importance, it may, if great care is not taken in selection, resolve itself into a precocity which is decidedly uneconomical, involving as it does, diminished body size and size of egg, lowered vitality, and a greater predisposition to disease.

On more than one occasion we have urged that it would be to the advantage of the commercial egg farmer if he were to trap-nest his flock for the first six weeks of their laying career, with a view to discovering the earliest producers for retention as breeders, and have also emphasised the importance of culling at the end of December. In a large flock there is always a fair percentage of pullets which have not started laying at this period, and this is the time when the pigmentation test is most valuable, in combination, of course, with other external indications.

Interest in the subject is increased by the publication of an article in "Poultry Science," giving the result of a test carried out in Sonoma County, California.

In the summer of 1922 seven flocks, comprising 6,084 pullets, four and a half to six months old, were selected. These flocks were segregated during September, 1922, on the basis of physical development and sexual maturity, for the purpose of determining the relative producing ability of pullets sorted on this basis, and to determine what percentage of late maturing pullets might be profitably culled out of commercial flocks at this age.

Five flocks comprising 3,976 pullets were segregated into two groups, 1,955, or forty-nine per cent. in the early maturing, and 2,021, or fifty-one per cent. in the late maturing group. The test lasted ten months, and the results were as follows:—

Eggs per pullet.		
Early.	Late.	Difference.
131.6	103.6	28.0

The average mortality among the early maturing birds was 14 per cent., while the later had a mortality of 20 per cent., or 6 per cent. difference.

It is assumed that the cost of feed was 60 per cent. of the total cost; if such was the case the late maturing birds just about "broke even," while the early ones made a profit of 85 cents. per pullet over cost of feed, labour, depreciation, etc. At no period of the test did the late maturing birds lay so well as the early ones.

Two flocks were segregated into three groups each, and were also tested for a ten months' period. The groups were: Early, Medium, and Late. The results were as follows: —

Eggs per pullet.		
Early.	Medium.	Late.
141.0	114.2	90.9

The average mortality was: 3.6, 5.3, and 9.0 per cent respectively.

Calculated on the same basis as before, the late maturing birds were run at a loss of 38 cents. each; the mediums made a gain of approximately 32 cents. each; and the early ones a gain of one dollar 15 cents. each. It is noticeable again that the early-maturing birds led in every month of the test, except in January, when they were just beaten by a fraction by the mediums; while late-maturing birds were consistently behind from start to finish, and as will be seen in each test, incurred the highest mortality, although in the case of the three groups the writer states that he is inclined to believe there may be a margin or error in respect to the mortality figures.

At the end of the ten months' period the flocks were culled for Breeders and Layers, with the following results:—

	Early.	Medium.	Late.
Breeders ...	34.8 per cent.	17.5 per cent.	4.0 per cent.
Layers	52.3 per cent.	51.7 per cent.	52.7 per cent.
Culls	12.8 per cent.	30.8 per cent.	40.8 per cent.

It is noted that half of the late maturing pullets, which were placed in the group of breeders, died before August 15th, indicating lack of sufficient vitality to maintain heavy egg production, contrary to the favourable indications at the time they were culled. Earlier work on this subject by Kempster and Kennard is quoted in confirmation of this view.

The authors are strongly convinced that 10 to 15 per cent. of the average White Leghorn pullet flock in the county could be profitably culled out and disposed of from 4½ to 6 months of age. That is equally true of this country. There is no doubt that one of the greatest causes of loss to the commercial egg farmer is the feeding of unprofitable stock, and on some farms the percentage of duds is very much higher than it should be.

The authors were also of opinion that a large percentage of the strongest and best producers come from the early maturing pullets.

It is possible, of course, that the higher mortality amongst the late maturing birds may have been in some measure due to environmental causes during development affecting the health of individuals. This would inevitably delay sexual maturity. The mere fact that a bird is slow to mature is not an indication that it is lacking vitality. The bird growing the bigger frame will almost invariably be slower to mature sexually. The whole test, however, affords convincing proof that early maturity is a most important factor in selection, and one which any breeder anxious to raise his flock average, and who is not able to trap-nest, should take carefully into consideration.

Modern Poultry Feeding.

By **TOM NEWMAN.**

MAIZE AND SHELL-LESS EGGS.

When lecturing at Liverpool last week, a member of the audience stated that his flock average was over 190 per bird, and would have been higher but for the fact that he had such a number of soft-shelled eggs, which he did not count. Incidentally he mentioned that this average had been obtained on dry mash. I asked questions as to the supply of oyster shell, etc., green food and the percentage of animal protein used. The answers did not in any way suggest that the cause could be traced to a deficiency of the one, or an excess of the other. I then asked when the greatest number of these shell-less eggs had been laid, and whether much maize had been fed at the time. The answer was just what was expected; the greatest number were laid in the flush months, maize had been fed at the time, and the owner said that he had noticed that when he had decreased the quantity of maize there had been a decrease in the number of shell-less eggs. Now we must be careful, or it will be bruited about that maize feeding causes shell-less eggs, just as it was that it caused liver disease, with the result for a score of years or more poultry-keepers deprived themselves of a valuable and cheap food, because some individual with little reasoning power had said that it caused liver disease, and many individuals with less, had repeated year after year in the poultry press exactly what he had said, until the public accepted it as an absolute fact without troubling to enquire whether there was any truth in it or not.

Maize, it is hardly necessary to say, will not cause shell-less eggs, but we do know that birds will often fall out of production, or lay intermittently, because of a deficiency of fats in the ration, and for that reason I have so often urged that the maize in the ration should be increased when eggs fall off at the end of May, so that production may be prolonged, and the bird be in a fitter condition to moult when the time comes. We can understand then why these birds which were in high condition and laying heavily would lay shell-less eggs. When maize was fed it stimulated the ovary, or, perhaps, it would be more correct to say, it supplied it with the constituents which lead to the more rapid formation of yolk. In the poor layer it would have resulted in the accumulation of internal fat.

A test is to be made in America of the effect of fish meal on the flavour of eggs. Occasionally one gets a complaint of eggs tasting "fishy," and samples are sent me for an opinion. When such cases occur it is almost always due to an inferior sample, which has really only a manurial value, the excess of oil causing the fishy taste. A good sample of fish meal with an oil content not exceeding 4 per cent. will never cause fishy eggs, even when fed up to 25 per cent. of the mash. That amount is, of course, not only wasteful, but is injurious to the birds. When one takes up a sample and finds the paper in which it is wrapped, greasy, that is sufficient to condemn it, and generally an oily sample is very smelly.

I referred the other day to the urgent need of investigating the effect of feed on the hatchability of eggs and the vitality of chicks, and expressed the hope that when the National Poultry Institute was in full swing, that something would be attempted in this direction. Now I can see that an experiment is to be undertaken in America to determine the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A., and fat soluble B. vitamins fed breeding hens, on the vitality of the chicks. This is a difficult proposition, as a deficiency of mineral salts fed to the breeding hens, is likely to materially affect their health to a greater extent than would a deficiency of any of the other constituents of foods. I believe that a deficiency of the calcium salts would have a more detrimental effect on hatchability and on the vitality of the chicks than any other single constituent, and it seems to me that it will be very difficult to find a ration deficient in A. or B. vitamin in which there is not a deficiency of these salts. Although we know that an "incomplete" protein may result in slow development, or in complete cessation of growth, no experiments, so far as I am aware, have been made in the pre-natal stage. It will be very interesting to watch the effect of a deficiency of the fat-soluble A. vitamin.

So far experiments in this direction have not been wholly convincing, and if the ration can be made up with a known deficiency of this vitamin, without in any way affecting its nutrient value in other respects, such as a deficiency of the mineral content, or the use of proteins of comparatively low value, we shall be in a more satisfactory position to judge than we are now. The great difficulty, as I said before, in regard to these experiments, is to estimate the effect of environmental conditions on the health and development of the birds, that is apart from the feed itself.

Many readers have written to ask how best they can use potatoes to advantage, and one correspondent has written to say that he has been told they are a most unsuitable food for poultry. That is not quite correct. Potatoes may well play their part in the ration when it is found economical to use them. They are useful in fattening, but will also help to produce eggs. We have, however, to remember that the protein content is very low, and they are very deficient in the important lime salts, so that we must balance our ration accordingly. To use maize in conjunction with them (I mean in the mash) would be a mistake, as they both fail in the same important particulars. A good layers' ration, including potatoes would be:—

Malt Culms: One part.
Bran: One part.
Potatoes: Two parts.
Middlings: Four parts.
Fish Meal or Meat and Bone Meal: One part.

Of course, it will be understood that the potatoes will be cooked. I add this because the question has been asked before. For a fattening mash equal parts potatoes, ground oats, and barley meal can be used,

(Continued at Foot of Column on Next Page).

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

" BODIES " for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

Curious (Bridgwater). I cannot say definitely that it has been proved that the sex of the chick can be determined before hatching by the amount of carbon dioxide thrown off. Some three or four year ago I visited, with Major Lee, a plant the owners of which claimed that they had proved right with 90% of eggs. They stated that the male embryo, being the more vigorous, evolved the more carbon dioxide; the test was made on the eighth day. We had nothing but the owner's word that this was correct. I leave it at that, and would not care to express an opinion one way or the other; we cannot even prove that the male embryo is the more vigorous. The article describing the methods employed was published in "Eggs" at the time. I do not consider it of sufficient importance to repeat it. (2) The size of egg is quite fair for pullets just beginning to lay; if they are in good bodily condition you cannot do anything in the way of feeding to increase. Pullets when coming into lay should be if anything a little on the fat side—it is better that they should be so than in under condition.

E. CCC. (Derby). As you had an outbreak of coccidiosis, it is probable that these stunted pullets were some of those which were attacked and recovered. Chicks over eight weeks old are able to some extent to resist the attacks of the parasite. It does not appear to be so fatal with them as with younger birds, but they never fully recover from the attack, and are not worth keeping; it would be advisable to kill and bury them. It is impossible to advise any system of feeding which would turn them into profitable pullets. (2) The sample of bran is very "woody," and is not good enough for poultry feeding; the barley meal is very good, you can use it in the mash in place of maize meal and in the same proportion. Please see "Modern Poultry Feeding," in answer to your question as to potatoes.

Cross-bred (Wigan). The Minorca Langshan cross would give you good layers of large eggs, but it is slow to mature and will require more food to keep in production than any other cross or pure breed that I know. It is also rather given to broodiness; as a table bird it is fair, the progeny are black, but many of them show bronze feathers in the neck hackle. For the backyard the pure Minorca is preferable. No, you are not overcrowding; on the contrary, the house would accommodate another six pullets. Yes, it would be much better to cover in the run, which is not of the slightest value at present; if you did that, you might keep another dozen pullets. You have done remarkably well under such difficult conditions.

K. D. (Ipswich). The Light Sussex would be more suitable for your purpose than the Orpington. It is a better table bird, matures more quickly, is quite as hardy and as good a layer; it is not more broody than the Orpington. (2) If the birds in this house are always suffering from colds, there must be something radically wrong with the ventilation. From your description I imagine that it is too low pitched at the back, consequently the birds are too near the roof, and are perching in a pocket of bad air. I do not know whether it is possible to ventilate it at the back without the birds being in a draught; you would be wise to see to this, otherwise you may get an outbreak of roup this autumn.

A. Y. D. (Cranbrook). The sample of fish meal duly received. I could not say that it is better than the other brand which you mention. It is very good, with an excellent analysis, and low content both of oil and salt. I am not prepared to accept the statement that this fish meal is made from the whole of the fish after the liver has been extracted without further evidence. No good comes from comparing it with others to their detriment. There

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MODERN POULTRY FEEDING.—Continued.

with the addition of half part meat meal. If skim milk is not available, much better results will be obtained with the milk especially if it is soured. If it is not obtainable, I would suggest the addition of a little dried yeast to the mash, as this will help to maintain the appetite which is not always easy when fattening birds. Care should be taken that the barley meal should be a well-ground sample; some samples contain such a high percentage of husk that it causes digestive trouble, which naturally does not assist fattening.

are plenty of brands of good fish meal on the English market with an analysis in every respect equal to that of the one you send.

N. (Nairn). I would not use broken crockery ware as grit for fowls. I could not say definitely that the clay contains poisonous minerals. It may do so. The internal passages are not more likely to be lacerated than they are with some of the hard flint grit which is often used, and which is equally useless. The birds should be either given limestone grit or oyster shell. The common flint grit is of no value whatever, and broken crockery ware is likely to prove injurious.

"Cumbrian" (Cleator Moor). The sample you send is not fish meal, but meat and bone meal. The quality appears very good, but there is no analysis, and it would be better if you bought on analysis.

A. H. (Carterton). The toppings at 10s. 9d. are very poor, containing a large quantity of ground-over bran. You really must get something with more flour in it. This is not broad bran; it is simply ordinary bran which has been passed through the rollers twice and flattened out. The barley meal is a very good sample indeed, quite the best I have handled for some time. The S.G.O. are only fair. This appears to have been badly stored, or else been in stock for some time; the fish meal is a very good sample. Of course, you cannot expect your hens to lay very well at the present time, when most of them would be moulting, or hardly through the moult. I do not think there is anything in the foodstuffs which would have put them off laying.

G. B. (Meopham). The sample of dried milk is a very good one. It appears to be full-cream. The S.G.O., however, are not a good sample, neither are they "Sussex ground," although they would answer the same purpose. The middlings are just fair; they contain quite a high percentage of ground-over bran, and one would like to see more of the flour. The bran is poor. It is just an ordinary sample, which has been moistened, passed through the rollers twice and flattened out. It is not broad bran in any sense of the word.

A. E. T. (Rainham). Your feeding is certainly very expensive, and you are using an excessive amount of fish meal. I suggest that you change it to:—1 part bran, 4 middlings, one biscuit meal, one ground oats, and half fish meal or meat and bone meal. Give the birds two ounces of this when weighed dry, and as grain feed give two parts kibbled maize, one wheat and one oats. This should be always given in the litter. I really could not tell you what is the matter with the bird which moves her head quickly when anybody approaches her and gets very excited, and has also a dull eye and whitish face; but I should say that the best treatment would be to kill and bury her, as she is not likely to be of much value as a layer. We are sending you particulars of the S.P.B.A. by post. We cannot reply to non-members through the post unless a fee of 2s. 6d. is paid.

"Skidore" (Penrith). In answer to your letter. (1) Yes, I do maintain that a fowl can consume sufficient dry mash to supply her bodily requirements, and maintain the rate of production that is demanded of her to-day. On Saturday last I was lecturing at Liverpool, and a member of the audience stated there that he had an average of 190 eggs per bird, and would have had a higher average but for the fact that a considerable number of soft-shelled eggs had been laid which had not been counted. Further, I have a letter to-day from Mr. Trude, of Talaton, near Exeter, in which he says:—

> "I have found the dry feeding very successful and have a flock average of 191 eggs each. The first year I have tried dry mash, and the best and largest number of eggs I have ever had."

That answers your first question. (2) I do not think that by adding moisture to the meals you can in any way assist their easier assimilation. As to your question as to why fowls prefer wet mash to dry when reared on the latter system, I can only answer this by saying that the wet mash is more easily eaten; that they satisfy their appetite at once, whereas with the dry mash system they are eating it all day. (4) Most certainly it is the quality of what is digested that counts, rather than the quantity. I have pointed this out repeatedly. You are right in assuming that while the amount of actual digestible matter in one food be less than in another, it may be of a higher quality. (5) You can obtain Messrs. Henry and Morison's book, "Food and Feeding," the analysis of foods, and the percentage of digestible matter in each, but not the quality. In answer to your sixth question, I advise that the dry mash should be always before the fowls, because if it were not so they could not consume enough in the day.

A. G. H. (Ticehurst). A suitable wet mash for your pullets near laying would be: 1lb. bran, 4lbs. sharps, 1lb. biscuit meal, 1lb. S.G.O., and 1lb. meat and bone meal. This would suit both your May hatched pullets and your pullets near laying; your May hatched should not be far from it now. You could replace the biscuit meal or S.G.O. with maize meal or maize germ meal at any time if you wished. No, I would not advise you to feed kibbled maize only. Give them equal parts kibbled maize and wheat.

R. N. (Marlborough). The sample of S.G.O. at £6 15s. 0d. half ton is better than the one offered at 17s. cwt. Both are of good average quality, and quite suitable for the purpose, but I should not call them superior samples.

F. L. T. (Blagdon). Of the three samples of fish meal you send, I prefer A., although there is not much to choose between that and B. C I do not like at all. The so-called broad bran is merely an ordinary sample, which has been put through the rollers twice and flattened out. It is just a fair sample and nothing more. The sharps contain a high percentage of ground-over bran, and are not good enough to feed. The ground oats are not " Sussex " ground, but would answer the same purpose; they are just fair.

POST-MORTEMS.

I. The cause in the case of the hen was ulceration of the bowels, due to a very heavy infestation with parasitic worms. It would be well to treat the remainder by fasting for twenty-four hours, and then giving each one a capsule containing three minins of oil of chenopodium followed by a dose of castor oil.

Novice. The post-mortem examination of the duck showed the cause to be peritonitis, due to the death and decomposition of a yolk still on the stalk which was remarkably long and twisted. Replies and reports re post-mortems are now only sent by post and not through the paper.

E. P. G. The post-mortem examination on the Exchequer Leghorn pullet showed the cause to be internal haemorrhage and shock, due to the rupture of the rectum near the anus and rupture of the blood vessels supplying the intestines. A most minute examination of the body failed to trace how these injuries occurred, but external violence seems to be the probable explanation.

J. O. Diphtheritic roup was the cause of the trouble in this pullet, and it is more than probable that the others you mention were also affected by this disease, as it is highly infectious. The entire flock should be given medicated drinking water, prepared as follows :—Dissolve four ounces of copper sulphate in one quart of rain water, and of this place one ounce in every gallon of water to drink. Isolate the visibly affected ones and examine their mouths and throats for roupy deposits, which should be scraped off and the bleeding surfaces cauterised with a silver nitrate stick. In addition to this local treatment dip their heads, with the mouths held open, under the dilute copper sulphate solution, holding them there for twenty seconds. This should be done daily until recovery, and the entire premises should be thoroughly disinfected, litter, droppings, and dead birds burned and the ground in the runs well watered with a solution of chloride of lime, eight ounces to three gallons of water.

J. R. The post-mortem examination on the two R.I.R. cockerels showed the cause to be gout in both instances, and very typical cases. This is evidence of a diet too rich in protein, and the ration should be reduced in this respect. The treatment that has given the most favourable results is a fast of twenty-four hours and then the administration of fifteen to twenty grains of glauber salts, given either in the food or water. The saline treatment should be kept up for ten days or a fortnight. A useful book on poultry diseases is one by Ward and Gallagher, published by Macmillan and Co.

B. B. We do not supply any medicines, sera or instruments, but your local veterinary surgeon can obtain what you require from Messrs. Hewlett and Sons, Charlotte Street, London, E.C.2. The serum applicable is the " Serum for diphtheria in poultry," made by the Bacteriological Institute, Tours, France, for which Messrs. Hewlett and Sons are agents. The dose is 3 cc., and all the birds should receive one. The listed price is 2s. 6d. for a 10 c.c. bottle.

L. G. S. The post-mortem examination on the young hen turkey showed the cause to be an advanced coccidiosis. The chief means of communication of the disease is by means of the droppings, soiling food and water, so these should be constantly swept up and burnt. If possible, move to fresh ground, turn over and heavily lime the old runs and leave vacant for as long as possible. To treat, dissolve one dram of powdered catechu in two gallons of water, and give to drink allowing none other. Keep them on this medicated water for a month and then mix one dram of sulphate of iron in each pound of mash.

R. B. Y. The White Leghorn pullet was literally eaten alive by parasites, which had also produced an extreme anaemia by their blood-sucking propensities. To prevent further losses we should advise dehousing the whole flock, disinfecting the premises, and giving forty grains of the citrate of iron in each gallon of drinking water, for a week or so, to combat the anaemia.

F. W. The post-mortem examination of the pullet showed the cause to be roup, which is, as you know, very infectious. Any pullets or others showing any signs of colds or discharge from the eyes should be taken from the flock and put by themselves. Give the whole flock medicated drinking water prepared as follows :—Take four ounces of bluestone and dissolve in one quart of rain water, and of this add one ounce to every gallon of water to drink. Treat affected birds by dipping their heads, with the mouth held open, into a solution of permanganate of potash, one and a half ounces to the gallon of water. This should be done daily for a week or ten days.

M. S. K. In reply to your letter, dated 30th September, nothing definite has yet been discovered as to the cause of cancer, although many theories have been advanced. We should think it extremely unlikely that the foods you mention would have anything to do with it, one way or another. As regards cancer being infectious, the Cancer Commission, which has been in session for a long time, has made no statement, but, as far as it is known, cancer is not infectious, neither would the eggs be injurious for human consumption. On general principles it would be wise to disinfect the house and pen, but we should imagine that there would be little danger from that source. The question of the hereditary transmission of cancer is still in doubt, but the latest evidence is that it does not take place.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

THE NATIONAL UTILITY POULTRY SOCIETY AND THE UTILITY DUCK CLUB NATIONAL EGG-LAYING TEST, 1923-24.

Report for the Eleventh Month—7th August to 3rd Sept., 1924.

During the eleventh month egg production was well maintained until the close, when it fell sharply. The flock average of 13.30 eggs per bird is 1.49 less than the previous month's figures.

Broodiness was again much in evidence—338 birds (four twice) of the heavy breeds passed through the broody coops, and 27 of the light. The number of broodies requiring treatment in this test has certainly been above the average, but this is due to excessive broodiness in some strains, rather than to any very general increase in the brooding instinct.

The light breeds again laid rather better than the heavy, and increased their lead, but towards the close of the month the former fell off sharply, and the heavies will, doubtless, regain some of the lost ground during the remainder of the test.

The number of birds with records of 200 eggs and over have increased to 339.

The flock average for the 44 weeks is 165.65 eggs per bird. This is two eggs better than last year's record, which in turn was 7.18 eggs above that of the 1921-2 test.

This increase, especially in view of the size of this year's flock—over 2,000 birds—is highly satisfactory, and points to a steady improvement in the laying power of the fowls kept in this country, and is the direct result of the efforts of pedigree breeders.

The health and general condition of the test birds are all that can be desired.

DUCK TEST.

With a large number of ducks through the moult and again in lay a considerable increase in production is to be recorded, the average for the month in the flock was 12.99 eggs per bird. The leading pen in each section remains the same.

The ducks in the Small Breeders' Section continue to do well, and their average is now 251.60 eggs. The health of the ducks continues to be excellent, although there have been many cases of septic feet; some of these, even when apparently quite cured, continue to limp for a long time afterwards.

EGG PRODUCTION OF LEADING PENS.

Section 1. Championship (Ten Pullets).—1, Miss M. Fowler, 1990 pts.; 2, Capt. V. C. C. Gonne, 1049 pts.; 3, Mrs. E. M. L. Knight,

Section 2. White Leghorns (Five Pullets).—1, F. R. Welch, 1106 pts.; 2, Capt. V. C. M. Gonne, 1049 pts.; 3, Mrs. E. M. L. Knight, 1048 pts.;

Section 3. Black Leghorns (Five Pullets).—1, I. Margerison, 967 pts.; 2, J. and A. Moore, 934 pts.; 3, Venn Carr, Ltd., 931 pts.

Section 4. Non-Sitting Breeds (Five Pullets).—1, R. Charles Hall, 955 pts.; 2, J. H. Thompson, 934 pts.; 3, C. E. Legg, 890 pts.

Sub-Section 4a. Exchequer Leghorns.—1, Sam. Outhwaite, 768 pts. 2, Vice-Admiral C. Cayley, 725 pts.; 3, D. G. Bloom, 625 pts.

Section 5. White Wyandotte (Five Pullets).—1, Richard Rodwell, 1013 pts.; 2, Ralph Sewell, 986 pts.; 3, G. H. Rayner, 969 pts.

Section 6. Rhode Island Reds (Five Pullets).—1, W. and T. Salt, 1012 pts.; 2, G. W. Reeves, 935 pts.; 3, A. H. Capper, 925 pts.

Section 7. Sussex (Five Pullets).—1, F. Rossall-Sandford, 914 pts.; 2, W. Bradbury,. 866 pts.; 3, M. W. Slade, 858 pts.

Section 8. Sitting Breeds (Five Pullets).—1, F. R. Welch, 924 pts.; 2, Major J. Morrison, D.S.O., 920 pts.; 3, H. R. Parson, 918 pts.

Sub-Section 8a. Australorps.—1, H. R. Parsons, 918 pts.; 2, Hon. Elizabeth Chaloner, 684 pts.; 3, Hon. Mrs. Adams, 655 pts.

Sub-Section 8b. Buff Rocks.—1, F R. Welch, 924 pts.; 2, Mrs. M. Crookes, 904 pts.; 3, Geo. A. M. Kemp, 899 pts.

Sub-Section 8c. Orpingtons.—1, Major J. Morrison, D.S.O., 920 pts.; 2, P. J. Gough, 783 pts.; 3, C. Prior, 713 pts.

Turkeys.

THEIR HATCHING.

By BERNARD REDDAWAY, M.S.P.B.A.

When the turkey hens are nearly ready to start laying, they will spend a large amount of their time wandering about looking for suitable nests for themselves. If they are confined, they will, of course, utilise the nests supplied for them; but if they are allowed free range, they will quite often travel a very great distance from home, to make their nests in some secret lair, the discovery of which will defy the ingenuity of their keeper. If they show any such tendency to wander away, it will be advisable to erect temporary netting, with the object of confining them until they have started to lay.

Nests should be put not only in their houses, but also about their range. Big boxes, barrels, and any other shelters suitable for nests, will make good outside laying places. These should be placed in the corners of the run, or under any hedge that there may be.

If the turkey hen is required for sitting early in the season, her eggs should not be removed from the nest; but unless she is really needed it is advisable to collect her eggs every day, for if this is done she will lay a lot more eggs before going broody. Of course, a china egg must be left in the nest, or she will most likely not come to it again.

It is quite possible to hatch and rear turkeys artificially, but this method is not very successful, and it cannot be advocated unless a shortage of broody hens make it absolutely necessary.

The eggs take twenty-eight days to hatch, and they should be treated in very much the same way as fowls' eggs are. They require about the same temperature, and, of course, they should be turned twice a day. Great care must be taken that they do not become too dry, or the chicken will have some difficulty in breaking their shells.

When the turkey chicken hatch they must on no account be allowed to become chilled when they are removed from the incubator to the foster mother. During their rearing they require a very slightly higher temperature than ordinary chicks do. The method of feeding them when they are reared artificially is the same as when they are hatched and reared in a natural manner, and will be dealt with in a separate article.

A turkey hen will make a fine sitter and mother, and there is no better method of hatching turkey eggs than under their turkey mother. She will cover as many as fifteen eggs, and during hatching time she should be treated exactly as a sitting fowl. She can be left to sit in the place where she goes broody, or she can be removed to some other nest. Her sitting place should, however, be out of doors.

Six or seven eggs are all that a fowl will be able to cover. Nothing need be said about the natural hatching of turkeys; if food, grit, water and a dust bath are given, the hen can be trusted to do the rest much more efficiently than man is able to.

(To be Continued).

Correspondence.

THE INTENSIVE SYSTEM.

To the Editor of "Eggs."

Dear Sir,—If I were asked if I thought it were practicable, or even possible, to make commercial poultry farming a paying proposition on the intensive system, my reply would be NO—decidedly NO! If I were told, as I have been told, that in one or two isolated cases, in a small way, it was being successfully carried on, my reply would be the same, and that these exceptions, owing to peculiar circumstances, only went to prove the rule. I am not so presumptuous as to think that because on three different trials, at the cost of some hundreds of pounds, my own attempts ended in the inevitable failure which I think will result to those who are unwise enough to sink their capital in this alluring enterprise.

I am a great lover of all birds, and have a considerable number of many varieties, some tame beyond belief ; but it is always the same in outdoor aviaries, with open flights, in which they can come in direct contact with fresh air, sunshine and the land—they keep bright, healthy and full of bloom.

Poultry are land birds especially, and there is something inexplicable, at least that I cannot explain, in the benefit they derive from contact with the land. I have just brought into a large indoor aviary a number of foreign finches, African and Indian varieties. I must bring them in, as they cannot stand the cold ; they come from their outdoor garden aviary the picture of health. By next May I know this wonderful brightness and bloom will have disappeared, to be again recovered by a return to more natural conditions. With my intensively-kept pullets, although in the last attempt everything was done that I could think of to control both ventilation, light and cleanliness, far more work was entailed in the management than could be afforded under present economic conditions ; but always the same effects. After four or five months confinement, dull plumage, and that anaemic complexion so indicative of confinement, whether applied to animal or bird, a quick recovery taking place under more natural conditions. Owing to the considerable advance in feeding stuffs—an advance which probably will last, if not at its present intensity, for years to come, as cereal products last season were sold below the cost of production in most countries—commercial farming will be on its trial, and only the most economical methods are likely to pull us through.

I cannot accept your description of the semi-intensive system as being inevitable, in fact such conditions should not be, and need not be. I submit that poultry kept on the semi-intensive system will range and do range freely, if kept in moderate flocks on free range. After trials extending over years with flock averages carefully kept, I have come to the conclusion that the most economical flock unit is 100 birds, and the simple old-fashioned colony system the best of any ; but the number of birds to the acre should not exceed 250, except, perhaps, in most exceptional conditions on old turf, 300 may be kept, or nearly so—four hundred is too many. I admit that keeping the land always in use is theoretically wrong, but it does not appear so in practice, as it is now nearly three years since I put my layers on free range, and I see no reason to regret doing so, but quite the reverse. If the whole range is treated in alternate years with lime or slag and 250 head are not exceeded, I see no reason why the pasture should not remain indefinitely healthy and sweet, and supply all the green food necessary, and in its best form. Again, the conditions you describe as prevailing in front and around the houses can be neutralised, and corrected by the free and frequent use of lime spread on the bare surface that always exists in the immediate neighbourhood of these fixed houses. As regards the cost of labour, these may be over-rated in their importance. The great thing is to get good reliable workers who like their job, and have something to look forward to besides the somewhat uninteresting return of a weekly wage. At any rate, I find four men can care for, in every particular, 6,500 head, housed in flocks not exceeding much over 100 on free range.

As I am preparing to give up both ducks and pigs—neither of which I find such dependable profit-earners as the laying hen, and both of which entail more work—I shall eventually have 8,000 laying hens in charge of five poultrymen.

I agree thoroughly with your remarks on chicken rearing, but go farther. Chicken rearing in large numbers, as far as the total head is concerned, need have no terrors. It may be, and **should** be, as certain and reliable a factor in the industry as the care of layers, and entailing no more risks. But I do not believe it ever can or ever will be done economically, and especially with regard to the quality of the results, in what may be called "mass production."

You mention the disastrous results from bad air, but there is another, and that is the variation and fluctuation of the applied heat in artificial methods of rearing. One night of over heating, or one chill, and the mischief is done. The larger the numbers dealt with the greater the risk, accompanied with an anxiety and strain that must be overwhelming. Chickens can be reared naturally from December to May with mechanical certainty, provided certain precautions are observed. One of the most important is protection from cold winds, otherwise heavy losses will result, however well the other work may be done.

Digressing for a few lines in conclusion, I observed you were asked, among other questions, for a cure for colds in a late issue. I entirely agree with the reply you gave, as to a remedy, in most cases—viz., sulphate of copper. This, for the common roupy cold, is the best I know. Twice in my experience we have had our flocks attacked with influenza colds; the symptoms are sneezing, and the absence of all smell. Every poultryman knows the unpleasant smell of a roupy cold; often the precursor of roup. The influenza cold is often fatal. I have an impression that it is subjects with weak hearts that die. I have found a solution of White Izal, one in 100, have almost miraculous effects as a cure, given in a dose of one teaspoonful direct, and also given in the soft food at the rate of one ounce of neat Izal per 300 birds. This trouble is somewhat insidious, and losses may take place and cause much trouble to a poultry farmer if he is unable to detect the symptoms or does not know of a remedy. The first time I had it here it hung about for some three months; during last month I had another attack, and probably had some 50 to 60 deaths occur among the older birds from this cause. We have now, however, by the free use of Izal, stamped it out. We well dressed the houses with Izal powder, as well as giving individual doses and Izal in the soft food. While the attack lasted every poultryman carried a small bottle of the solution and picked up every bird he caught sneezing, and gave it a dose. Readers will, I hope, kindly note I have no time for private correspondence on poultry matters, as I have the responsibility of three businesses on my shoulders.

Yours faithfully,
T. W. TOOVEY.

THE INTENSIVE SYSTEM.

To the Editor of "Eggs."

Dear Mr. Newman,—Very hearty congratulations to you on your most excellent Editorial on the "Intensive System." The more one sees of certain extensive and semi-intensive systems of poultry-keeping, the more one becomes convinced that the future of poultry-keeping, with heavy egg production, lies with the intensive system, **properly understood** "bien entendur." Our knowledge of the right feeding of poultry under your much-appreciated guidance has made enormous strides in the last few years, and now it remains to evolve sanitary, well ventilated brooders and houses, and last, but not least, helpful articles from you and others in "Eggs" and the intensive system will come to stay. I shall look forward to the articles promised in "Eggs" in an early issue.

Could your correspondent, at the same time, bring his mind to bear on the **economical construction of sectional intensive houses? Personally** I have a bias for the Army hut type of building with ridge ventilation in preference to the open-fronted type of fowl house, as I consider them more comfortable for fowls and capable of better ventilation; but the cost of construction is heavy, and if your correspondent, in the course of his articles, could look into the matter of "framework" buildings of this type, the sides of which, instead of being of wood, could be "sectional" frames covered with wire "drum tight" and covered with ruberoid felt which could be made to fit into, or take out of, the framework. This, besides reducing the prime cost, would have the following great advantage. A few spare sectional frames might have the wire **only** on them, and in fine or hot weather could replace those covered with felt and thus give the fowls plenty of fresh air on really fine days. It is only a suggestion, but if intensive poultry-keeping is to come into its own, comfortable housing is essential, but is also expensive. Your correspondent's attention to, and views on, this important question cannot but add to the value of his articles.

I was glad to see what wide-world support the S.P.B.A. has, this being mainly due to "Eggs," under your editorship.

Yours sincerely,
H. A. SULLIVAN.

THE INTENSIVE SYSTEM.

To the Editor of "Eggs."

Dear Sir,—I have read with interest your Editorial of 1st October. I have kept poultry intensively for some time. I was finally convinced of the soundness of doing so by observation along the following lines. I noted for a week at three different times of the year, three times during each day:—

(1) Total number of birds outside the house.
(2) Number of active birds outside.
(3) Total number of birds inside the house.
(4) Number of active birds inside.

The inside birds were practically all occupied. The percentage of active birds outside was very small; on many occasions it was nil.

The ground was worn bare for a comparatively small radius round the house, and many birds never went to the end of the run at all.

The houses were for 50 birds, 16 ft. x 12½ ft., 3 ft. 6 in. of front open all the year round (no glass), liberal glass hood, ridge ventilation, a panel 3 ft. x 4 ft. opened out at the back in hot weather, amply well lighted, dust bath and green food supplied in racks to the intensive birds.

The egg result in spring and summer showed very little difference, but in the winter and autumn there was a marked difference in favour of the intensive birds. Added to this was the fact that practically no eggs needed cleansing in the intensive house, the non-intensive were filthy and cost nearly a penny a dozen to clean on some occasions. The bedding in the intensive house in the winter remained sweet, and had to be changed much less often than in the non-intensive. The green food was grown on considerably less than half the ground the non-intensive birds ran on. The intensive birds were much more tame, and ten of these could be handled while one non-intensive bird was being caught.

The birds in each case were 50 White Wyandottes, both were fed on your formula from three to two parts bran, four white middlings, one each ground oats, yellow maize, Bicola. Kibbled maize was the only grain fed winter and summer, and this latter to heavy breeds intensively kept. **Isn't it awful?** It is a good thing they can't read some of the poultry journals or they would get fat on it right away. Maize is not fed to the pullets as grain until about five months, and not then if they are backward and not up to weight. R.I. Reds are now kept on the same lines. The early mated breeding pens run out as the male birds are more active when let out, that is in November, December and January; after this, breeding in the intensive houses is quite successful.

Yours faithfully,
KEITH S. DOUGLAS.

UTILITY SHOWS.

To the Editor of "Eggs."

Dear Sir,—I think your readers would be well advised to make sure they buy really pedigree cockerels and pullets at shows.

A great many of these birds are bred by exhibition breeders but are deficient in perhaps one point, probably colour; they are not from trap-nested stock, but being of good type come under the Utility class.

Can nothing be done to ensure **Utility** birds being shown in Utility Classes?

Yours faithfully,
P. BOWLER.

CANNING POULTRY.

To the Editor of "Eggs."

Dear Sir,—In reading through the September 10th number of "Eggs," I notice a reply to one of your correspondents, L. B. (Mount), regarding the canning of hens and chicks on a small scale.

While I do not know of any place in Canada where poultry is canned on a small scale, throughout the province of Quebec the farmers' wives put down poultry in preserving jars most successfully.

A few years ago I had dinner at a small farmhouse back in the mountains of Quebec, and commented to my hostess on the tender quality of the chicken which we had for dinner. This was in September, and, to my surprise, she told me that the "chicken" was really a two-year-old hen which she had put down the previous October.

Their method of doing this is as follows:—Starve the bird 24 hours before killing, and 12 hours before give a tablespoonful of vinegar to drink (it is, of course, necessary to force the bird to drink this).

As soon as the flesh is cold, disjoint the carcase and cut up into pieces small enough to go into an ordinary preserving jar, pack it in tightly until the jar is full to the neck; add salt and pepper and chopped onions to taste. Add no water.

Put cover and rubber ring on the jar, but do not close it with the tightening lever.

Place the jar in luke-warm water, and boil for three hours. After taking the jar out of the water at the end of this time, lower the fastening lever to seal the jar hermetically, and stand jar in reversed position for at least two hours.

This completes the process, and the contents can be preserved for an indefinite time in an ordinary temperature.

I may add, in further explanation, that what we know here as a preserving jar, is a light glass jam jar, holding either a pint or a quart, the cover being a large glass stopper with a rubber ring around it, and which is closed hermetically by a small wire lever.

Trusting that this information may be of some service to your correspondent.

Yours very truly,
W. W. LEE,
Poultry Husbandman, Dominion of Canada.

(We are very much indebted to Mr. Lee for the above information, which will no doubt be appreciated by many of our readers. —Ed.).

INHERITANCE OF FECUNDITY.

To the Editor of "Eggs."

Dear Sir,—It seems that although we endeavour to think and observe without prejudice or bias we are yet unconsciously much subject to external influences. This has, I think, been very marked in the study of inheritance.

Scientific genius gives powerful expression to a theorem; we follow its leading, test it, and modify, but until proved to be erroneously based it still has its hold upon us.

Now Weissmann stated that acquired characteristics cannot be transmitted, and there followed on the statement that inheritance is in the race and not in the individual. Now these dogmas have appealed to us and held us because of the early teachings of Darwin and his contemporaries.

Some recent experiments properly collated have attracted a great deal of attention in America.

(1) It was found that race horses while in training bred winners, and when "preserved" in paddock, with nothing to do but breed, ceased to breed winners.

(2) That pigs bred highest fecund stock only when themselves at the top of their fecund power. Too young or too old to breed large litters, their progeny failed also to breed large litters.

(3) That cows bred their record milking heifers only when themselves giving their record output.

Now these interesting experiments cause no confusion whatever; they are of that class which make one say, "Well, really, that is only what I should have thought."

If evolution is merely another word for the pressure of environment upon life, or the accommodation of life to its environment, then these experiments are merely truisms.

It further follows that the almost instantaneous evolution or creation of whole orders of animal life (in terms of geological time) is easily imaginable. And it further follows that the rapid evolution of the high-fecund hen is easily understood.

Surely it is only reasonable to appreciate, knowing what we do of life, that **any** form of life forced to deal with a new factor in its existence or striving to accommodate itself to new conditions will mirror its activities in its progeny. That it should do so is obviously a first law of the continuance of the race and the reproduction of its own kind.

It seems to me that we should reap much good by approaching our breeding problems in the light of this new knowledge, and be very glad to abandon many hotly-contested dogmas in favour of an easily appreciable general principle.

Yours faithfully,
H. R. HAWARD.

Rosehoe, Hythe, Kent.
27th August, 1923.

Dear Sir,—I greatly appreciate the paper, and find it an immense help. My trouble has been halved, and the results most encouraging by following "Modern Poultry Feeding," and putting all my chicks from the first day on Experiment IV. Out of 50 chicks hatched the mortality has been nil, and they have always looked in the best of health and vigour.

Yours truly,
(Signed) MABEL H. MOON.

LANCASHIRE FEDERATION EGG-LAYING TEST.

COUNTY POULTRY FEDERATION'S COMPETITION.

The report for the 12th and last month (August 24th to September 20th) in the Lancashire Federation egg-laying test has just been issued by the secretary, Mr. E. Collier. The light breeds were penned at Mr. H. Hayes's Farm, Tottington, and the heavy breeds at Mr. W. Hamnett's Farm, Blackpool. A more detailed report, showing each individual bird's record for the 12 months will be printed and sent to each competitor as early as possible. In the large breeders' sections the bird which had the highest number of eggs for the 12 months was Mr. J. Rainford's R.I.R., credited with 283 in the 48 weeks, and the bird which gained the highest number of points was Mr. R. Green's R.I.R., with 245 eggs and 1,208 points. In the single bird sections Mr. W. Fletcher's White Wyandotte took the highest honours with 258, and 1,222 points, the highest individual score in the test. The scoring for the 12th month was five points for a first-grade egg of 2oz., and four points for a second-grade egg of 1¾ozs. The final positions are as follow, the figures showing the eggs and points respectively:—

LARGE BREEDERS' SECTIONS.

Light Breeds (Three Birds).—1, W. Barron, 560, 2,696; 2, R. Rodwell. 540, 2,552; 3, W. Braithwaite, 523, 2,402; 4, A. Proctor, 500, 2,326; a5, J. Hamer, 475, 2,247; 6, H. Sutton, 448, 2,103.

White Wyandottes (Three Birds).—1, C. C. Humber, 687, 3,135; 2, J. Gregory, 558, 2,642; 3, F. Holden, 550, 2,633; 4, E. Cam, 547,

A.O.V. Heavy Breed (Three Birds).—1, R. Green (R.I.R.), 666, 2,601; 5, R. Moon and Son, 517, 2,554; 6, R. Green, 524, 2,547. 3,216: 2, R. Moon and Son (R.I.R.), 604, 2.798; 3, J. Rainford (R.I.R.), 627, 2,733; 4, W. Wearden and Sons (R.I.R.), 537, 2,663; 5, T. Braithwaite (R.I.R.), 580, 2,604; 6, W. A. Bainbridge (R.I.R.), 519, 2.507.

SMALL BREEDERS' SECTIONS.

Light Breeds (Single Birds).—1, F. and H. Evans, 189, 905; 2, H. Tattersall, 169, 813; 3, J. Smith, 159, 774; 4, W. L. Holding, 161, 768; 5, W. Hall, 140, 624; 6, E. Crowther, 146, 613.

Heavy Breeds (Single Birds).—1, W. Fletcher (W.W.), 258, 1,222; 2, S. B. Lonsdale (W.W.), 207, 980; 3, A. Spencer (W.W.), 237, 889; 4, T. B. Grice (L.S.), 185, 837; 5, Chadwick Bros. (W.W.), 171, 807; 6, J. W. Pearson (W.W.), 155, 728.

On Breeding.

By G. C. HESELTINE.

IN-BREEDING (II.).

"In-breeding" is one of the most fearsome bogies to the novice. Two novices may be discussing some particular breeder, and his stock, perhaps considering purchase, when one say in hushed tones: "I have heard that he *in-breeds*". And there falls across the reputation of the breeder a dreadful shadow. It is as if he should have been suspected of drug taking, falsifying his Income Tax return, wife beating, or some such terrible and secret vice.

So long as the feeling of the novice towards in-breeding is one of fear, as of a dangerous and undesirable thing, all is well. In-breeding has the reputation of bring untold evils in its train. And it deserves that reputation if it is *indiscriminate* in-breeding.

The beginner should avoid in-breeding like the plague. He must not, however, criticise a breeder who is reputed to practice the vice.

In the experienced breeder's hands it is not a vice, but an art. It may be almost a virtue, for it is a laborious method of fixing the quality of his stock and ensuring that customers get stock which will breed true and be value for money.

In-breeding, particularly in its specialised form, known as line-breeding, is useful, and indeed almost essential to the pedigree breeder. But nowhere is the truth of the time-worn-tag about a little knowledge more plainly evident than in this subject.

For example:—At a certain country show a novice who had, to his surprise and delight, won first prize with a drake, and third prize with a duck, asked me, as a duck breeder, if I would advise him to mate the two birds together. My reply to his question was another question, "Why?" In the first place, prize cards are no guarantee of the quality of the birds, and they never, in themselves, justify a mating (but that is by-the-way, and will be discussed later). In the second place, no birds should ever be mated without a definite object in view.

I next asked if they were related. He told me they were both from the same pen, and then suggested that that was a good thing, because "inbreeding intensifies good characters." This is where the little knowledge comes in. True, it intensifies good characters, but it also *intensifies bad characters*. I pointed out this fact, and the novice replied that he would not in-breed with birds which carried bad characters, but only with exceptionally good birds. He added that he picked the best birds out each year, and mated them, irrespective of relationship, because in-breeding intensifies good characters. That was as far as his little knowledge went. It was dangerous because he apparently did not know or did not believe that inbreeding, besides "intensifying the good characters, treats bad and good characters alike, and, furthermore, brings, as the price of any advantage which may be gained, a tendency to loss of size, stamina and constitutional vigour." Moreover, in-breeding does not intensify good characters unless they are carried by both the male and female.

If, for example, a male of exceptionally good colour is mated to a related female of only fair colour, it does not follow that there will be any improvement in the quality or "fixing" of the colour in the progeny.

But if they are both small, such a mating would tend to give smaller progeny, which would have the loss of size more fixed. Thus by aiming at one advantage in colour, such a mating would fail in its purpose, and also have its disadvantages. An indiscriminate mating of that nature is dangerous for another reason. The one bird may carry a certain factor, say for a particular shade of colour, the other may carry good colour, but, in addition, it may carry a factor which the other bird lacks. This factor, when present, may interfere with, or inhibit, the character for which you are working. It is, therefore, necessary to know something of the ancestry of both birds at whatever point their relationship diverges. In other words, in in-breeding for a specific character, it is necessary to know how that character has been transmitted to the birds you are mating. So that an indiscriminate mating of any birds, just because they are both good, is quite likely to fail in its object, as well as bringing the evils of in-breeding in its train.

In-breeding may only be resorted to for a well-defined and specific purpose, such as the improvement and fixing of a particular colour, type or egg-yield. Whatever characters you are concerned with must be known to you, both as regards their mode of inheritance, and also as regards their presence in the birds with which you are working. Further still, in spite of the fact that both birds may be quite suitable in respect of these things, they will be quite unsuitable for in-breeding, unless they are *exceptional* for stamina and constitutional vigour. They must also have those factors which you are *not* working for (but which are important in the breed), well evident and well mixed. Otherwise in gaining one point you may lose another.

The birds should be exceptionally good in *every way*. The fact that they may both have won first at a classic is no guarantee of their suitability for in-breeding, or even for breeding at all.

(To be continued.)

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A Council Meeting will be held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, October 18th, 1924. Chair to be taken at 3 p.m.

AGENDA.

1. Minutes of last Council Meeting. 2. Letters and Communications. 3. Delegates' Report (National Poultry Council) Meeting, held at Wye College). 4. Accounts. 5: Sub-Committee's Report, Finance, Show, Educational, Laying Test. 6. Date of Annual General Meeting and Prize Distribution. 7. Any other business.

E. COLLIER, Organising Secretary.

The following Sub-Committees are requested to meet at the same place at 2 p.m.:—

Educational and Propaganda.—Messrs. J. R. Hull, W. Grove, T. Edmundson, J. Dewhurst, J. Whalley, W. Fletcher, and W. A. Hall.

Laying Test.—Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris.

Finance.—Messrs. J. R. Hill, W. Hamnett, F. J. Butterworth, J. P. Willacy, and S. Marson.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

THE ANNUAL GENERAL MEETING.

Will you please remember that the Annual General Meeting is to be held in the Club Room at the Dairy Show on Thursday, October 23rd, at 11.30 a.m. The President, Mr. J. C. Kitson, will preside. ALL MEMBERS ARE ASKED TO ATTEND. You are asked, too, if you visit the Show, to call at the S.P.B.A. Stand and sign the Visitors' Book. The President and other members will be in attendance all four days, and the Secretary also.

THE DAIRY SHOW—IMPORTANT NOTICE.

Readers will remember the very interesting series of articles we published on the "Marketing of Table Poultry," by Mr. A. V. Clarkson.

Mr. Clarkson has now very kindly offered to be in attendance at the S.P.B.A. Stand at the Dairy Show, during the whole time that the show is open, for the purpose of giving any information regarding the marketing of poultry. I am sure our readers will very much appreciate Mr. Clarkson's kindness, and the value of the advice of an expert on a subject which is of such importance.

OUR DAIRY SHOW ISSUE.

The motto of the S.P.B.A. is :—

> "We do not say a thing because it's SAID,
> Nor do a thing because it's DONE."

We **ORIGINATE, INVESTIGATE, INTEREST,** and **INSTRUCT.**

I think you will agree, when you see the Dairy Show issue of "Eggs," that we are acting up to our motto. The Council are keen that members should realise that our journal is run for the benefit of its readers and not for profit, and it will be far better than anything we have attempted yet. I am tempted to say that no better value has ever been given for money, but that isn't a very original saying, is it? So I will just add, there will be no increase in the price.

THE INTENSIVE SYSTEM.

I have received the following letter from Mr. Wilson on this subject :—

> "Pleased to see your remarks in last issue on the above system. I proposed to adopt it for eggs only, and table chickens from a first cross. Will some of your readers who have had experience kindly give some details. I understand the 'ALL' White P.F., Cobourg, Australia, is run on this system, both hatching and rearing. They have 3,000 birds on 1½ acres of land, and the birds are noted for stamina and egg-producing capacity. I believe Mrs. Baines also keeps her birds on this system, but I have never heard the result of her hatching and rearing, and the financial results at the end of the season. Mr. Toovey wrote to the press some years ago, that he had tried it, and the birds were all right during the winter, but very anaemic in the spring."

Mrs. Baines, I believe, has given up poultry, and I cannot give Mr. Wilson the information he asks for as to the Australian farm. It will, however, be well to remember that over there the climatic conditions make things easier. I entirely agree with Mr. Toovey, the birds do look anaemic in the spring. What we have to realise is that the intensive system has so far proved a failure. There have been one or two exceptions to this it is true, which should demonstrate to us that it is possible to succeed; still, it badly needs investigation, for it has undoubtedly great possibilities. There is no difficulty in keeping the laying stock in good health and vigour during the winter months, but if the system is to be of any real value we have to find out where the young stock went wrong, as they undoubtedly did do. The Editor of the Register tells me that we shall have a very interesting article on this subject when it appears.

INCUBATION.

I see that an experiment is to be carried out in America with a view to finding out what is the effect on hatchability of the steaming and sprinkling of eggs at pipping time. In the course of the last few years I have received, from time to time, letters from readers telling me that they had solved the dead-in-shell problem, either by immersing the eggs in warm water or by sprinkling them a few hours before pipping. Although they may not have solved the dead-in-shell problem, it is possible that to some extent they obtained better hatches by so doing, but it is also possible that under other conditions the results, so far from being better, might have been materially worse. Some years ago an article appeared in an American paper advocating the washing of eggs on, I think, the 18th day. The writer, an experienced poultryman, contended that by so doing he removed the film of oil deposited by the hen, and so enabled the growing embryo to obtain more oxygen. He published records which showed on the face of it that he was right. But when one considered the whole question more carefully, there was no doubt that, although his hatching may have improved considerably as a result of this washing the eggs, his theory was all wrong. In the first place, there is more carbon-dioxide under the sitting hen than there is in the incubator, and, in the second, the film of oil must, on account of the continual contact of the eggs with the feathers of the hen, be thicker than on an egg which is collected from the nest the day it is laid, yet the percentage of eggs hatched is higher under the hen than in the incubator. After the article mentioned above had been published in "Eggs" several of our readers made the experiment, with the result that some had better hatches and some worse. The explanation is, that in some cases the eggs received some much-needed moisture, and in others the moisture was in excess. I do not think that "film of oil" plays any part in the hatching of the egg. There is just a possibility, and that is a remote one, that it may go a little way towards preventing too rapid evaporation. However, all this only demonstrates once again that the bump of observation is the most valuable bump in the cranium of the poultry-keeper, and that no hard and fast lines can be laid down for running an incubator, or any other phase of poultry-keeping.

SOUTHERN IRELAND NATIONAL EGG-LAYING COMPETITION.

The results of the above competition, conducted by the Department of Agriculture at the Munster Institute, Cork, have just been announced. The competition covered a period of 48 weeks (16th October, 1923, to 15th September, 1924), and comprised 57 pens of pullets of various breeds and 12 pens of Indian Runner Ducks. The number of birds in each pen of pullets was six, and in each pen of ducks four.

In Section 1, which comprised A.V. Leghorns, Minorcas and Anconas, Mr. A. J. McGillicuddy won with the fine record of 1,338 eggs, value £10 0s. 11½d., an average per bird of 223 eggs, closely followed by Mount St. Joseph Abbey, with a total of five eggs less, two shillings less in value, and an average of 222 eggs per bird; and Mr. T. J. Maguire, with an average of 220 eggs per bird. Fourth prize was won by Mrs. Coubrough, with an average of 204½ eggs per bird.

The winner also obtained the special prize for the pullet in the section laying eggs of the highest market value—253 eggs, value £2 0s. 6½d. These were all White Leghorn pens, the records of the Minorcas and Anconas were rather disappointing.

In Section 2, devoted to White Wyandottes, Mrs. Chearnley won well, with a total of 1,419 eggs, value £10 12s. 11½d., an average for the pen of 236½ eggs per bird. Mrs. Harvey was a good second, with 1,378 eggs, average per bird 229⅔, value £10 3s. 11d. Mrs. Strong third, with an average of 212 eggs per bird. Lady Dunleath fourth, with 212½ eggs per bird, but with a slightly lower money value.

The special prize in this section for the pullet laying eggs of the highest market value was awarded to Mr. D. Freeland, whose bird had the wonderful record of 284 eggs, value £2 3s. 6d., in the 48 weeks.

In Section 3, devoted to A.O.V. Heavy Breed, Mr. Marshall Barnes won with Australian Black Orpingtons, the record for the pen being 1,275 eggs, value £9 10s., an average of 212½ per bird. Miss Cavanagh was a good second, with a pen of Rhode Island Reds, averaging 205½ eggs per bird. On the whole, however, the Reds do not appear to have lived up to the reputation they have here.

The Cup (or its value, £10) for the pen of pullets of any breed laying eggs of the highest market value during the competition was won by Mrs. Chearnley, for the pen which took first prize in the Wyandotte section.

The Special Prize for the pen which laid the highest market value of eggs from 16th October to February 15th was won by Mrs. Strong.

In the Duck Section Mrs. Tallent was an easy winner, with an average 280¾ eggs per bird, value £8 17s. 7d. Lady E. Poer-O'Shee's pen took second place, with an average of 213 eggs per bird. Miss Somerville third, with an average of 206 eggs.

THE WADHURST BRANCH.

Mr. Everard reports that a very successful show was held at the Wadhurst Branch, in which one hundred birds and twelve lots of eggs were shown. Mr. A. J. Falkenstein was the judge, and he spoke highly of the birds exhibited. Exhibitors must be very gratified at such an expression of opinion by so well-known an expert.

Assistance was given by Messrs. A. E. and F. Gallup, Kenyon, Miss Hollis, Mrs. Tudor, and Dr. Rosedale, in making preparations for the show.

The Heathfield and District Poultry-Keepers' Association gave as prizes: 4 separate half-cwts. of "H.P.K." mash, and these were awarded to Messrs. Luff and Bennet for the best White Leghorn pullet, Mr. Slowe for R.I. Red pullet, Miss Amey for Light Sussex, and Mr. Everard for Buff Orpington Duck.

The Challenge Cup was won this year by Mr. W. G. Pritchard with a White Wyandotte pullet.

Prizes for eggs, given by Miss Hollis, were won by: Mr. A. E. Gallup (white), Miss Courthorpe (brown), and Mr. Everard (tinted).

Miss Amey showed a White Sussex pullet—a very fine bird and quite true to type. Some two years ago I had a cockerel and several White Sussex pullets sent me. Of course they are "sports" from the Light. They are remarkably handsome birds, and I would like to see them propagated. It would be really a valuable new variety of Sussex.

Dr. Rosedale has promised to give a series of lectures on Feeding to members of the branch during the coming months.

KEIGHLEY AND DISTRICT BRANCH OF S.P.B.A.

The activities of the President and the committee of the Keighley and District Branch are very gratifying to the Council.

Their laying test, particulars of which appear in another column, has just been brought to a close.

On 1st November they have their First Annual Great Open Show of Utility Poultry. Many cups and specials are offered and substantial money prizes. The judges are Mr. R. Rodwell and Mr. E. Whittaker. There are over 30 special prizes, including a challenge cup for the best exhibit in the show, owned by a member of the S.P.B.A., given by the S.P.B.A. The Keighley and District Cup, subscribed for by members of the Society. Mr. Frank Snowden is offering a prize for the member gaining the most points in the Keighley Members' Classes. Medals are offered by Messrs. Quaker Oats, Ltd. The White Wyandotte Club offer for the best utility White Wyandotte pullet, combining laying qualities with reasonable type, colour and size. The "Hattingley" Points' Cup for a member of the B.B.L.C. gaining the most points by end of the year. The "B.B.L.C." Cup for the poultry-keepers owning not more than 30 laying fowls. "Mrs. Drew's" Cup for the best Utility Buff Rock, male or female, the property of a member of the B.R.C. Another "Special," value one guinea, by Mr. F. Snowden, for the exhibitor gaining the most points in open classes.

Full particulars can be obtained by writing to the Secretary, Mrs Wilson, Minorca Farm, Denholme, Bradford.

KEIGHLEY AND DISTRICT BRANCH.

EGG LAYING TEST, 1923-1924. FINAL REPORT.

The twelfth and final month of Test concluded on October 1st, 1924. There was an increase in production among the heavy breeds during the last month, but light breeds were almost all moulting. Capt. W. Owen, Sussex, won the S.P.B.A. Challenge Cup, for pullet with highest record in the whole Test, with his White Leghorn, which laid 251 eggs in the 48 weeks of Test. This bird also secures Mr. F. Snowden's special for best White Leghorn, also the gold medal, given by the Society, for best in Light Breed Section. Mr. H. Nelson, Bradford, won in the Heavy Breed Section with his White Wyandotte. Her score was 248. She also secured the White Wyandotte Special, given by Mr. Dixon, Ingrow, and the gold medal, given by the Society, for best in heavy breeds. Mr. S. Preston wins the Buff Rock Special, given by Mr. J. R. Waddington, score 221 eggs. Mr. J. Ellison wins the R.I. Red Special, given by Mr. F. Hodges, score 210 eggs. Mr. H. Buckley wins his own Special for best Black Leghorn, with a score of 228 eggs. Mr. Ed. Smith wins the Cockerel, value £2 2s., given by Mr. Robert Miller, for best Exchequer Pullet, score 214. The Light Sussex Cockerel, given by Messrs. T. Marks & Son, Somerset, was won by a Light Sussex the ownership of which is in dispute. These scores are considered highly satisfactory, taking into consideration the very exposed position in which the Test has been held. It is hoped the Society will be in a position to grant First-Class Certificates to competitors whose birds have laid 220 eggs and over, and Second Class Certificates to those whose birds have laid 200 eggs and over. Final scores are:—

LIGHT BREEDS.

Pos.	Owner and Breed	1st grade.	2nd grade.	Score.
1.	W. Owen (W.L.)	248	3	251
2.	S. Lawton (W.L.)	246	—	246
3.	H. Buckley (Blk. L.)	228	—	228
4.	F. Snowden (W.L.)	225	—	225
5.	Mrs. H. Wilson (W.L.)	218	4	222

Pos.	Owner and Breed.	1st grade.	2nd grade.	Score.
6.	Mrs. G. Barker (W.L.)	220	—	220
7.	Ed. Smith (Ex. L.)	202	15	214
8.	H. Reynard (W.L.)	200	12	212
9.	S. Lawton (W.L.)	211	—	211
10.	S. Preston (W.L.)	208	2	210
11.	W. Bancroft (W.L.)	207	1	208
12.	T. Wade (W.L.)	202	—	202
13.	Mrs. J. R. Thompson (W.L.)	201	1	202
14.	F. Pickles (W.L.)	199	—	199
15.	B. Atkinson (Buff. L.)	196	—	196
16.	F. Pickles (W.L.)	194	—	194
17.	W. Reddihough (W.L.)	180	20	192
18.	Mrs. T. Thompson (W.L.)	182	—	182
19.	H. Dixon (W.L.)	180	1	181
20.	A. Wallbank (W.L.)	158	—	158
21.	—— (Br. L.)	144	10	144
22.	A. Wallbank (W.L.)	140	19	152
23.	J. H. Brayshaw (W.L.)	135	—	135
24.	W. Robinson (W.L.)	119	18	131
25.	W. Reddihough (W.L.)	123	5	128

HEAVY BREEDS.

Pos.	Owner and Breed.	1st grade.	2nd grade.	Score.
1.	H. Nelson (W.W.)	236	16	248
2.	H. Downsbrough (W.W.)	237	—	237
3.	H. Kershaw (W.W.)	229	7	236
4.	H. Rawlinson (W.W.)	227	7	234
5.	S. Preston (Buff R.)	219	2	221
6.	J. Ellison (R.I. Red)	210	—	210
	S. Lawton (W.W.)	208	2	210
7.	Mrs. G. Barker (W.W.)	206	3	209
8.	B. Atkinson (Barred R.)	205	3	208
9.	J. H. Brayshaw (W.W.)	201	2	203
10.	H. Kershaw (R.I.R.)	199	3	202
11.	Mrs. T. Thompson (R.I.R.)	182	—	182
12.	A. Holroyd (R.I.R)	181	—	181
13.	H. Rawlinson (W.W.)	167	43	179
14.	H. Reynard (W.W.)	177	—	177
	—— (L.S.)	176	1	177
15.	H. Downbrough (W.W.)	176	—	176
16.	H. Whitaker (R.I.R.)	174	—	174
17.	A. E. Spencer (R.I.R.)	168	—	168
18.	F. Hodges (Buff. R.)	163	2	165
19.	Mrs. J. R. Thompson (B. R.)	131	5	136
20.	J. Railton (W.W.)	113	12	125
21.	H. Whitaker (R.I.R.)	122	2	124
22.	F. Hodges (R.I.R.)	110	—	110
23.	J. Robinson (R.I.R.)	77	3	80
24.	A. Holroyd (W.W.)	27	1	28
25.	S. Lawton (R.I.R.)	5	—	5

The Laying Test for 1924-2925 will be held at Otley, in connection with that of the Yorkshire Federation International Laying Test, which starts on October 18th, 1924.

(Signed) ANN WILSON, Manageress.

THE SIXTH MIDLAND LAYING TEST.

Particulars are to hand of the Sixth Midland Laying Test for 1924-25, which is open to Great Britain. £100 in money prizes is offered, with gold, silver and bronze medals and diplomas.

It is claimed that there are sections to suit every breed and variety.

The test begins on 3rd November, and is for 12 lunar months.

Interested members should write at once to the Secretary, Mr. A. H. Brain, 63, Old Meeting Street, West Bromwich.

There is one thing about this test: That a bird which can lay there should be able to lay anywhere. Certainly the site is very much exposed. When I visited it last year I was very much astonished to find it in such an exposed position.

APPLICANTS FOR MEMBERSHIP.

Kidd, Mrs. M. C., Newbiggen House, Dacre, Penrith, Cumberland.
Angas, Miss E., Thatched Cottage, Knotty Green, Beaconsfield.
Heathcott, G. H., 166, Shrewsbury Road, Market Drayton, Salop.
Prewett, Norman, Innsworth, Nr. Gloucester.
Richardson, Leonard, 15, Bourne Road, Bexley, Kent.
Halliday, S., Woodland Poultry Farm, Cookridge, Leeds.
Rowson, Richard B., 93, Langroyd Road, Colne, Lancs.
Sayers, Andrew, Happihome Poultry Farm, Drumbeg, Lisburn.
Upton, The Hon. Henry Mountjoy, The Holm Poultry Farm, New Galloway, Scotland.
Vann, H., 25, Boyer Street, Loughborough, Leicestershire.
Clayton, Miss, Snape Hey Farm, Mellor, Marple Bridge.
McCallum, Duncan L., 6, Brownsfield, Inchinnan, Renfrew.
Dimmock, Jas., 12, Mead Plat, Neasden, N.W.10.
Kynoch, Miss, Strathlene, Buckie, Banffshire.
Gounin, A., Elevage, Avicole de Jaunard, Cazaux (Gironde), France.
Rankin, Miss J. M., The Shrubbery, Warmley, Nr. Birmingham.
Barrand, W. J., "Haverholme," Bottesford, Nottingham.
Carlyle, Thos., 221, Alcester Road, S. Birmingham.
Howard, Jas., 5, Sandy Lane, Orrell, Wigan, Lancs.
Findlay, Miss R. (Manageress), Dunecht Poultry Farm, Dunecht, Aberdeenshire.
Tuplin, Miss E. M., Belvoir Castle Farm, Woolsthorpe, Grantham.
Reece, Jos. A., Webbs Avenue, Grahamstown, S. Africa.
Price, J., Bulford House, Wellington, Somerset.
Legg, G., Builder and Decorator, High Road, Hockley, Essex.
Kidman, P. Waite, High Level Poultry Farm, Drayton Road, Hellesdon, Norwich.
Smith, Miss K. Porter, 8, Monks Road, Lincoln.
Hastings, Warren, Bungalow Poultry Farm, Sanctus Road, Stratford-on-Avon.
Metcalf, F. W., 91, Burnt Ash Hill, Lee, S.E.12.
West, Mrs. F. M., 8, Myers Road, East, Gt. Crosby, Nr. Liverpool.
Simpson, Mrs. G., The Poplars, Algarkirk, Boston, Lincs.
Clark, —, Clareboro' Poultry Farm, Branston Moor, Nr. Lincoln.
Redhead, Mrs. C M., Coxdown, Broad Oak, Heathfield, Sussex.
Selling, H. F., c-o Coxdown, Broad Oak, Heathfield, Sussex.
Wadsworth, Chas., Moorland House, Norland, Sowerby Bridge, Yorks.
Roberts, Rowland Price, Sydney Street, Flint, North Wales.
Bunniss, J. Wm., 129, Barnsley Road, Wombwell, Nr. Barnsley.
Faulkner, J., 24, Albert Avenue, Reddish Lane, Gorton, Manchester.
Martindale, Wm., 87, Liverpool Road, St. Helens, Lancs.
Friar, H. V., 140, Knowsley Road, St. Helens, Lancs.
Rashley, Colin, "Brooklands," Cowes.
Weller, Mrs. W. C., Bockingham Hall, Copford, Colchester.
Johnson, G. F., 56, Cross Hill, Ecclesfield, Nr. Sheffield.
Lawson, Ed. R., "Onaway," Crescent Drive, Race Hill, Brighton.
Andrews, W., "Woodside," Regent Street, Fleet, Hants.
Le Grice, A., Parkers Farm, Badwell-Ash, Nr. Bury St. Edmunds.
Basset, Rev. G. H., Foxearth Rectory, Long Melford, Suffolk.
Bullock, Geo., 24, Bristol Road, Edgbaston, Birmingham.
Green, F. T., The Poultry Farm, Tamerton Foliot, Brownhill, Devon.
Schrader, C. M. C., 70, Onslow Gardens, Muswell Hill Rd., N.10.
Wickens, R. L., The Pinfold Poultry Farm, Tingewick, Bucks.
Carbury and Co., Ltd., 8, Princes Street, London, E.C.21.
Hodgson, Chas. Ed., The Cottage, Hollybush Farm, Chesham, Bucks.
Hook, R. E., 21, Arthurdon Road, Brockley, S.E.4.
Kay, Capt. Granville, Bracon Ash, Norwich.
Doyle, N. P., Wolmer Poultry Farm, Marlow Common, Bucks.
Powers, —, Wood Dagger Poultry Farm, Hindley, Nr. Wigan.
Jones, Mr. Fleetwood, Park Wharf, Evelyn St., London, S.E.8.
Godfrey, John, and Co., Ltd., Railway Gates, Stamford.
Marshall, Jas., "The Limes," 46, Drumover Drive, Parkhead, Glasgow.
Keogh, Miss G., Crofton P. Farm, Stubbington, Hants.
Bett, Leslie G., Welland House, Fosdyke, Nr. Boston, Lincs.
Mawson, Ellis, 13, Alma Terrace, East Morton, Bingley, Yorks.
Ackroyd, Frank, 4, Mortimer Street, Four Lane Ends, Bradford.

S.P.B.A. ACCOUNTS FOR 1923-1924.

1. GENERAL ACCOUNT. From September 1st, 1923 to August 31st, 1924.

RECEIPTS.

	£	s.	d.
To Credit Balance	99	19	4
Subscriptions	1744	14	0
Donation	0	8	6
Publications	615	18	0
Badges	11	3	0
Interest	23	19	5
Register—Adverts.	762	11	6
Extra Pens	4	18	0
Sales	0	9	0
	£3264	1	6

EXPENDITURE.

	£	s.	d.
By Stationery, &c.	115	18	0
Postages	191	17	11
Travelling Expenses	251	19	7
Adverts.	2	0	0
Dairy Show	64	2	4
Olympia Show	64	19	3
Leicester Show	22	14	1
Law Costs	1	11	6
Branches (Grants)	5	8	6
Memorial Hall	9	6	0
N.P.C. Affiliation	24	1	6
Publications	47	19	1
Office—Building	60	13	9
Furnishing	45	1	3
Light, &c.	10	3	7
Rates, &c.	5	14	2
Insurance	9	12	6
Salaries	465	1	3
Awards, Medals	21	0	0
Overseas' Delegates	26	0	0
Bank Charges	7	8	1
Register—Publishing	709	3	7
Postages	131	8	5
Printing	17	2	6
Literary Contribution	2	16	0
Commission, Advts.	94	0	10
	2407	3	8
Credit Balance	856	17	10
	£3264	1	6

2. BALANCE SHEET, August 31st, 1924.

LIABILITIES.

	£	s.	d.
As per contra:			
	£1437	12	10

ASSETS.

	£	s.	d.
By Office and Furniture	300	0	0
Publications and Stationery	244	0	0
Badges	12	0	0
Register Advts., Unpaid	24	15	0
Credit Balance, as above	856	17	10
	£1437	12	10

3. RECONCILIATION ACCOUNT.

	£	s.	d.
To Credit Balance	856	17	10
	£856	17	10

	£	s.	d.
By War Loan at par	750	0	0
Cash at Bank	105	13	9
Cash in hand	1	4	1
	£856	17	10

N.B.—These accounts have been passed by the Council subject to audit.—H. MUDIE DRAPER (Hon. Treasurer). *October 7th*, 1924.

Some Problems in Poultry Breeding.

DR. CREW'S PAPER ON SEX AT THE MIDLAND CONFERENCE.

(*Continued.*)

The discussion was opened by Mr. George A. Palmer, of Wykin, who doubted whether the Creator would ever allow them to interfere or directly control the sex ratio. He also doubted whether there was any direct dividing line between the sexes at the moment of fertilisation or how did they account for hermaphrodites and the presence of certain sexual characters in both sexes.

Members of the Conference related instances within their experience of certain preponderances of one sex more than another, and Mrs. Crawford said, with regard to the suggestion that the later hatches were more likely to be females, she had hatched out fourteen chickens, and at the end of the season had obtained twelve cockerels. Mr. J. S. Kitchen said his experience was that a good matured hen mated to a three-year-old cock gave the nearest way of getting pullets. Mr. T. R. Robinson asked a question as regards cattle, whether sex was determined by the period of service, and Capt. Peirson-Webber questioned as to the size and conformation of the egg as indicating sex.

Dr. Crew, in his reply, said the scientific attitude was not the prerogative of the man who gets his living from the State for a certain purpose. Many of the great discoveries had not been made by the avowed scientist, for more often it had been the enthusiastic amateur, the fancier, who had taken the facts which other people provided, and had built round them, and by observation had followed on to discovery. What the State expected of him was not so much discovery as research, to conduct experiments for the purpose of collecting facts, and to test facts to see if they are capable of being incorporated into industry. Mr. Palmer had every right to call himself a scientist, for it was simply an attitude of mind. He was not prepared to touch on the great question of evolution, as mentioned by Mr. Palmer, or the interpretation of it; but would merely say that those of them who were professional biologists are merely concerned with the disclosing of the mechanism. The mechanism may be beyond all human control and human comprehension, but the point is that the scientist is a man filled with a weird and wonderful curiosity, who wanted to know how, and not so much why. There was the question of irreversibility—whether sex is irrevocable and determined at the moment of fertilisation or no. He could tell them a story of marine life, which started life as a free swimming organism, and then in its later stages settles at the bottom of the seas in the larval form. You cannot then tell in any way whether it will be male or female, and which it will be depends entirely where and how it settles. He quite agreed with the suggestion of Mr. Palmer that the fact that sex determination occurs at the moment of fertilisation does not necessarily mean it will become male or female. One knows it is perfectly possible, and one can manipulate and persuade development of an individual that it will differentiate and assume the characters of the female, though at the time of fertilisation it was a determined male. Sex is determined at the moment of fertilisation, but the ultimate fate whether it will become a functional male or female is another point altogether. Even in the male you find indications of the female characters, and in the female suggestions of the male. Every individual begins its life as a fertilised egg, and then comes the stage of growth and increase in size; organ formation begins, and the cells arrange themselves in a different way, assuming different functions and outline, and you get suggestions what the body is to be like. At that particular moment male and female are exactly alike with a common architecture. The creation of a functional male or functional female occurs by a process which switches further development in one way or the other. Every individual is equipped with a common architecture at one point, and after that the development is guided one way or the other.

(Continued at Foot of Next Column.)

SOME PROBLEMS IN POULTRY BREEDING— Continued.

(*To be Continued.*)

OUR SPECIAL DAIRY SHOW NUMBER.

Our Dairy Show issue, dated October 22nd, will, as usual, be a much enlarged number, containing amongst many other good things a special supplement by our Editor, Mr. Tom Newman. It will be on sale at our Stand in the Gallery on each day of the Show. Regular advertisers are well aware of what an exceptional "business bringer" our Dairy Show issue is. To those who do not advertise regularly, we would strongly urge the booking of a space. The sales always show a large increase but the rates remain the same, viz., 6s. 6d. per single column inch. **"COPY MUST REACH US BY FIRST POST FRIDAY NEXT, 17th inst.**

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 10th OCTOBER, 1924.

GRAIN AND FEEDING STUFFS.—English wheat is in good demand and dearer, although the quality on the whole remains only moderate. Milling samples now average 12s. 8d. per cwt., a rise of 5d. on the week. Imported wheats are also decidedly dearer, No. 1 Manitoba averaging 16s. 7d. per cwt., as against 15s. 2d. last week. There is practically no alteration in quotations for British barley, both malting and grinding descriptions selling readily, but imported barleys have a dearer tendency. Imported oats are scarce and again dearer, with home-grown oats in strong demand and dearer in sympathy. Maize meets a good trade and averages 11s. per cwt., a rise of 7d. on the week.

Milling offals are a very firm market and prices have again risen, especially for bran, which averages £8 15s. per ton, more than 6s. above last week's price, and nearly £2 10s. more than a year ago. Meals are also generally dearer, in sympathy with the increases in the prices of the raw materials. Oil cakes are steady, and prices are firmly held.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s.; Hull, £8 12s.; Liverpool, £8 15s.; London, £8 15s. Broad Bran: Hull, £10 2s.; London, £9 12s. Middlings—Fine (Imported): London, £11; Coarse (British): Bristol, £10 17s.; Hull, £11; Liverpool, £10 15s.; London, £9 17s. Pollards (Imported): Bristol, £9 5s.; Hull, £8 15s.; Liverpool, £9; London, £9 2s. Rice Bran: Bristol, £9 2s.; Liverpool, £8 15s. MEAL.—Barley Meal: Bristol, £14 10s; Hull, £14; London, £14 7s. Maize Meal: Bristol, £12 5s.; Hull, £11 18s.; Liverpool, £12; London, £12 5s. Maize Germ Meal: Bristol, £12 5s.; Hull, £12 5s.; London, £12 2s. Maize Gluten Feed: Bristol, £12 5s.; London, £10 15s.

EGGS AND DEAD POULTRY.

There is still a scarcity of the better class of eggs, and quotations are again somewhat firmer for practically all descriptions. Dead poultry is fairly plentiful, but only a moderate inquiry is experienced and late rates are barely maintained.

Week-end Prices—Eggs (per 120): British, 25s 0d, 23s 0d; Irish, 21s 6d, 20s 0d; Danish, 24s 0d, 22s 0d; Dutch, 26s 0d, 23s 0d; Russian, 16s 0d, 12s 6d; Belgian, 21s 9d, 20s 9d; Italian, 21s 0d, 19s 0d; Lithuanian, 17s 6d, 15s 0d; Roumanian, 14s 9d, 13s. 3d.

Dead Poultry (per lb.): Fowls—Surrey, 1s 8d, 1s 5d; Irish, 1s 1d, 11d; Others, 1s 4d, 1s 1d. Ducks, 1s 2d, 11d. Geese, 1s 3d, 10d.

EGGS.

Per Doz.—Ashford: First, 2s 10d; Second, 2s 8d. Birmingham: First, 2s 4¾d; Second, 2s 2½d. Bridgwater: First, 2s 11½d. Carlisle: First, 2s 11d. Chelmsford: First, 2s 10¾d; Second, 2s 8½d. Denbigh: First, 2s 6d; Second, 2s 5d. Derby: First, 2s 6d. Dorchester: First, 2s 11d. Exeter: First, 2s 7d. Hereford: First, 2s 4d. Ipswich: First, 2s 9d; Second, 2s 6d. King's Lynn; First, 2s 5d; Second, 2s 2d. Lincoln: First, 2s 6d. Llandilo: First, 2s 6d; Second, 2s 3d. Montgomery: First, 2s 6d. Newport (Mon.): First, 2s 10d; Second, 2s 8d. Norwich: First, 2s 7d. Oswestry: First, 3s 3d; Second, 3s 2d. Penzance: First, 2s 3d; Second, 2s 2d. St. Ives: First, 2s 11½d; Second, 2s 10¼d. Salisbury: First, 3s 0d; Second, 2s 7d. Shrewsbury: First, 3s 3d; Second, 3s 0d. Skipton: First, 2s 6d. Truro: First, 2s 2d; Second, 2s 1d. York: First, 3s 0d; Second, 2s 11d.

FOWLS.

Per lb.—Birmingham: First, 1s 2d; Second, 9d. Derby: First, *5s 3d; Second, *3s 6d. Exeter: First, 1s 5d. Hereford:

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 15th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

MARKET REPORT.—Continued.

First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 0d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *4s 9d; Second, *3s 6d.

DUCKS.

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Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS.

FOR SALE.

Dale Egg Farm can supply New-Laid Eggs from October next. One year's contract for taking entire output preferred.—Enquiries to:—Collins, Lawshall, Bury St. Edmunds.

Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faveroles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

SUSSEX HATCHING EGGS.

For spring Chicken trade, from small pens of big hens, mated to big-framed Cockerels, specially picked for early maturity. Light, Red. Speckled, Brown Sussex; 7s. 6d. dozen. Quotations for quantities.—Hodges, Heathfield, Sussex. Established 1905.

Why young pullets don't lay consistently

Pullets laying this month for the first time must be carefully fed, otherwise their egg-production will be irregular and unprofitable and their chance of becoming good breeding birds seriously prejudiced.

Are your pullets laying by fits and starts or laying small eggs? If so, this is due to their inability to obtain sufficient nourishment from the Mash supplied.

With Ful-O-Pep Mash the pullets do not waste a lot of time consuming ingredients not required to give sufficient nourishment for the upkeep of their bodies, and for the steady flow of winter eggs.

This is why it pays to feed the finely ground, easily digested, perfectly balanced, guaranteed Ful-O-Pep Mash.

FUL-O-PEP TRADE MARK
LAYING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE

Make sure of consistent laying by reading the Ful-O-Pep Monthly Guide. It tells you how to get the best possible results from your pullets.

This book contains detailed suggestions for every month in the year, and 12 monthly egg charts for you to record your eggs. Sent free and postage paid.

Made and Guaranteed by
QUAKER OATS LTD., 11, FINSBURY SQ., E.C.2.

PULLETS.

FOR SALE.

100 White Leghorn Pullets, early May, 1924, 7s. 6d. each. 20 Light Sussex, March, 10s. 6d., from high-fecund trap-nested stock.—R. Cooper, Fairbank, Smeeth, near Ashford, Kent.

Black Leghorns. Needing the room have about 30 Black Leghorn Hens, 10s. 6d. each; and some 1924 Cockerels, 10s. 6d. each, for Sale.—Innes, Brean Cottage, West Monkton, Taunton.

Exchequer Leghorn Pullets and Cockerels for Sale, bred from 2nd Crystal Palace Hen and Reserve, Crystal Palace and 1st and Silver Medal Bath and West cock. Price 15s. and £1 1s. each.—Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites, 1923 and 1924 Pullets and Cockerels of this new and excellent breed for Sale, bred from Winners two 1sts and Silver Medal, Bath and West, 2nd and 3rd Leicester, Birmingham, Crystal Palace, Reserve Olympia, H.C. Dairy. Prices, from £1 1s. each.—Innes, Brean Cottage, West Monkton Taunton.

12s. 6d. each, February-March hatched, Simpson Barron White Wyandottes, Golden Measure Reds, Bostock Smith's-Hunter White Leghorns; Wilson strain, Indian runners; 6s. each.—Allday, S.P.B.A., P.F., Cotehill, Carlisle.

Pullets. I have still a few Pullets from my Best Breeding Pens for disposal. White and Black Leghorns, Wyandottes and Reds, prices from 12s. 6d. to £1. Also Breeding Pens and Cockerels. I am also offering some Houses, as new, and a few Incubators.—Rev. A. R. Runnels Moss, Shawell, near Rugby. See S.P.B.A. Breeders' Register.

Rhode Island Pullets, March hatched; healthy and well grown. Miss Kitchen's strain; 10s. 6d., 12s. 6d. each, carriage paid. —Fred Searle, Bluntisham, Huntingdonshire.

CAPTAIN FRANK HARRISON, S.P.B.A., Wyecot, Pedigree Poultry Farm, Brook, Ashford, Kent, offers 60 Rhode Island Red Pullets, January and February, 1924, hatched, at 15s., 17s. 6d., and 20s. each. All from trap-nested parents, Boucher x Golden strain. Carriage paid on six. Three days' approval.

MISS HASLER, S.P.B.A.,
FRINTON-ON-SEA,

Offers R.I.R. Breeding Pens, six good (1923) hens and high record cockerel; £4 10s. to £8 8s. Cockerels from registered pen, one to three guineas. Pullets, near laying; 16s. to £1. All stock trapped. Large Egg, Speciality.

500

1924 PULLETS.

WHITE WYANDOTTES. } (Trap-nested).
WHITE LEGHORNS. }
R.I. REDS, LIGHT SUSSEX.
BARNEVELDERS.

Highest-class birds, reared on free range. Well-grown, large size; 15s. and one guinea each, carriage paid, on approval. Reduction for quantities. Pupils taken, all branches, Utility and Exhibition. Good accommodation.

HEATHLANDS POULTRY FARM,

Ottery St. Mary, Devon, Members of P.C., S.P.B.A., R.I.Red, W.W., and Barnevelder Clubs.

GOLD MEDAL LIGHT SUSSEX.

Early hatched Pullets and Cockerels, from our 1923 National Test record-scoring pen and closely-related stock. Pullets from 12s. 6d., Cockerels 21s. upwards.—M. E. and A. Robinson, Kingswood Poultry Farm, Bawtry, Yorks.

1 G-

Wednesday, October 22nd, 1924.

LIBRARY UNIVERSITY OF ILLINOIS URBANA

EGGS

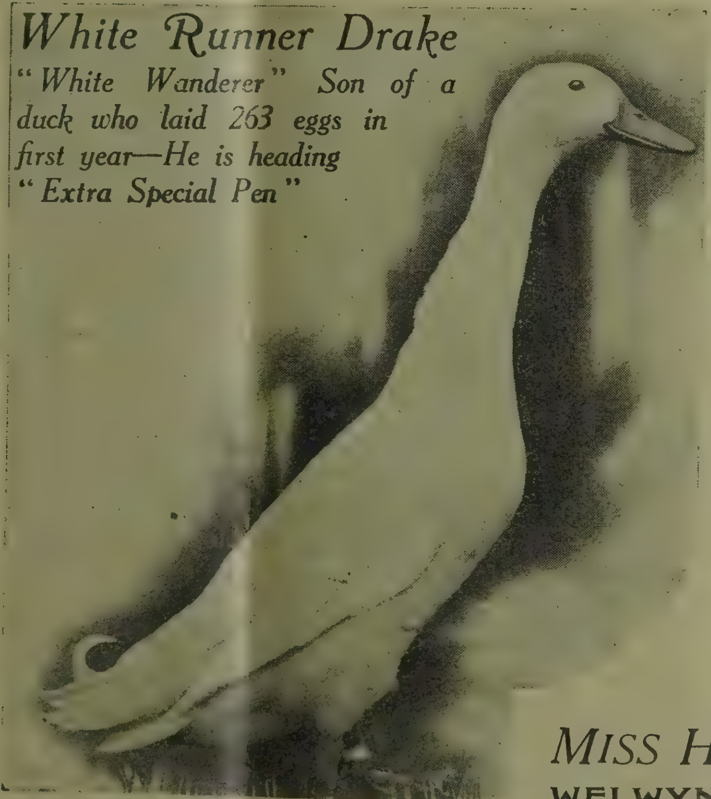
THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. X. No. 17. Copyright.

Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months Post Free 12/8
Six Months " " 6/4
Three Months " " 3/3



White Runner Drake
"White Wanderer" Son of a duck who laid 263 eggs in first year—He is heading "Extra Special Pen"

My White Runners

are well known as heavy layers. If you want a Breeding Pen, come and choose one from my "Many Egg" strain flock. They are a beautiful sight, ideally housed and have acres of range.

I have some 1923 ducks at **18/-** each, 1924 ducks at **20/-** and **25/-** each, and 1924 drakes at **10/-**, **15/-** and **20/-** each.

Write for my Price Lists of—

White Leghorns,
Light Sussex,
Buff Rocks,
Khaki Campbell Ducks.

MISS HARRISON BELL,
WELWYN — HERTS

EXTENSIBLE UNIT BUILDINGS

W. H. COLT.

Visitors to the Dairy Show

are invited to inspect Specimen Houses covering Poultry and Domestic uses on the site adjoining Bush House, Kingsway.

Laying and Brooder Houses, also Breeding Pens, both span-roof and lean-to are on view.

One of 3 Houses—60 x 15 ft. Type L—on Capt. T. R. Clutterbuck's Farm, Micklefield Hall Poultry Farm, near Rickmansworth, Herts.

EXTENSIBLE UNIT BUILDINGS are unique in that they were designed for Poultry—proved by the way in which stock housed in them responds by increased egg-yield from 25 per cent. to over 100 per cent.

In these houses, Live Pedigree Poultry of the best Utility breeds and strains, bred solely for Winter Egg Production, are being exhibited; these have been bred and reared on

MICKLEFIELD HALL POULTRY FARM

(the property of Captain T. R. Clutterbuck), near Rickmansworth, Herts.

THERE are also displayed Meals which the firm, as practical poultry farmers, are able to manufacture, and which are used on the farm exclusively. It is by their means that their Stock has attained such quality.

Worthy of note is their VERITY LAYING MEAL, a nourishing and stamina-giving foodstuff.

Genuine trap-nested records are on view, proving the wonderful fecundity of these birds. If you are looking for well-ventilated and lighted houses, first-class Stock, sittings and foodstuffs to enable you to have a successful season in 1925, do not fail to call.

Mr. W. H. COLT, M.N.U.P.S., M.S.P.B.A., Bethersden, near Ashford, Kent, and Mr. J. C. A. SPENCER, Manager of Micklefield Hall P.F., Rickmansworth, Herts., are both in attendance for the purpose of demonstrating above.

BUSH HOUSE, ALDWYCH, W.C.

Direct L.G.O. Bus Service, No. 67, and Trams are available between Bush House and Dairy Show.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 22nd, 1924.

Editorial.

THE INTENSIVE SYSTEM.

The article in a recent issue on the above subject has aroused considerably more interest than we had expected, and many letters have been received from all parts of the country commenting upon it. If there has been any criticism it is contained in Mr. Toovey's letter, and as that relates to his practical experience, it is very welcome and very helpful, as, indeed, Mr. Toovey's experiences always are.

We have one letter from a gentleman, who says he has had "life-long" experience, who heartily condemns the whole article. That doesn't matter much, but he admits in the letter that he has never personally given the system a trial.

He reminds us very much of the young man who had an idea that he would like to get married, but could not make up his mind. One day he overheard a quarrel between his next door neighbour and his wife. This ended in the good lady throwing a kettle of boiling water at her husband, which knocked the clock off the mantel-piece, scalded the cat, and broke the window, and, of course, missed its real objective. This decided the young man, who remained a bachelor all his days, and spent most of his time airing his views on the marriage state, in a manner which would have led you to believe that he had had the experience of Henry the Eighth.

There is a great deal of this sort of thing going on, men claiming life-long experience, and condemning something of which they have no personal experience. What knowledge they have gained—and it isn't much—being obtained by looking over their neighbour's gates, too often with prejudiced eyes, with a firm determination to see no good, and to attribute every evil to something which they have never tried, because it has been outside the scope of their experience, and, therefore, does not appeal to them. These are the people who believe that finality has been reached, and, perhaps it has, so far as they are concerned.

Mr. Toovey starts his letter by saying: "If I were asked if I thought it practicable, or even possible, to make commercial egg farming a paying proposition on the intensive system, my reply would be NO—decidedly NO!"

In the article on the subject we frankly pointed out that so far from being a success, the intensive system had been a failure in this country. In that respect we are in agreement with Mr. Toovey, but while he very definitely says that he does not consider it practicable or possible, and so very definitely closes the door, we plead that the causes of the failure should be investigated, for the reason that we don't like to accept failure without an adequate explanation of the cause, which has so far failed to materialise. Our belief is that there were great faults in the design of the houses, in the ventilation, that the value of light was wholly overlooked, and too much of the failure attributed to dietetic deficiencies. While we would certainly not advise anyone to start a commercial egg farm on intensive lines in the present state of our knowledge, the system certainly presents possibilities which make it well worth while to investigate, and endeavour to find out what were the causes of failure. Everything that Mr. Toovey has said with regard to the appearance of birds kept in total confinement coincides with our own experience. The difference between us is that he accepts the position, and we want to explore it, and endeavour to find out why it is so.

There is one part of his letter which is rather puzzling—that which refers to the increased cost of food. We cannot see what bearing this has on the subject. An intensively kept bird will not cost more to feed than one kept semi-intensively, when they are running at the rate of 400 to the acre. With regard to his remark that poultry on free range will and do range freely, we want to distinguish between free range birds and those kept semi-intensively. On this point there is a wide difference of opinion. We know many large commercial egg farmers whose experience is totally at variance with that of Mr. Toovey, whether the explanation is that the birds run in flocks of 400 and upwards or not, we cannot say.

As we are not attempting to justify the intensive system, but merely pleading that it should be given a further trial, strictly on experimental lines, it will be only right to say here that a comparative test of birds kept intensively, and others given their liberty, was wholly in favour of the latter, both as regards fertility, hatchability, and production. Indeed, the differences were so wide that one suspects that the results were not wholly due to the fact that one flock was kept in confinement and one allowed its liberty. We have no particulars of the housing, and so are not in a position to make any comment on this experiment.

The following letter from Mr. Lansley is of interest:—

> "I was keenly interested in your article in last week's issue on the intensive system. If it is of any value to you to know that we keep about 800 winter stock on an acre, you are at liberty to use it as a reference. We have successfully reared 450 pullets this year, 500 last year, and 400 the year previous. Our trap-nest records go to 238 for Black Leghorns in pullet year, and this hen laid her 208th egg to-day, in her second season, which ends on the 9th inst. White Leghorns, 235, and White Wyandottes, 251 (174 in 13 months). Our

(Continued at Foot of Column on Next Page).

Modern Poultry Feeding.

By TOM NEWMAN.

THE VALUE OF DRIED YEAST.

Some years ago I drew the attention of my readers to the value of dried yeast as a poultry food. Before that time it was not used in this country for that purpose, or, as far as I am aware, elsewhere, although its value had been known to stock-breeders some years previously.

From "Poultry Science" I take the following conclusions, based on an experiment which was conducted at the Pennsylvania State College, with a view of ascertaining the value of dried yeast, "as a supplement to a good poultry-laying ration as a means of increasing egg production."

The problem really in need of solution is said to be:

> "Can yeast be used to advantage in supplementing the better type of poultry rations? In other words, will an excess of vitamin "B" over that ordinarily contained in the better poultry rations stimulate better appetite, better growth, higher egg production, also influence the size and weight of eggs?"

There were eight pens of 45 pullets each. Two pens were under artificial light, one received 25 per cent. dried yeast, the other received none.

The pen receiving the yeast laid eggs to the value of 4.308 dollars. That without laid eggs to the value of 3.899 dollars.

One pen was given 25 per cent. yeast, and another 15 per cent. The value of the eggs laid by the pen receiving 25 per cent. was 3.248 dollars, that receiving 15 per cent. 3.752.

With two pens receiving 25 per cent., the one on wet mash, and the other dry, the former laid eggs value 3.584 dollars, and the latter 3.284.

With two pens receiving 15 per cent., the one on wet mash and the other on dry, the former laid eggs value 3.707 dollars, and the latter 3.752.

In each of the five pens receiving yeast, the value of the eggs laid was greater than in the three pens which did not receive it.

The conclusions arrived at were that:—

> (1) Pullets and hens not forced for egg production, and under natural conditions, employing a good ration with adequate yards, did not appear to need an additional amount of vitamin "B" to maintain their egg production and body weight.
>
> (2) In most of the experimental groups, the pullets and hens which were fed yeast ate slightly more food, and produced more eggs. The hens and pullets which received yeast maintained their body weight in a more satisfactory manner than those which did not receive the yeast.
>
> (3) Yeast had a distinctly beneficial effect when White Leghorn pullets were forced to undergo a longer feeding and exercising period by the use of artificial light. Under these conditions pullets developed better, laid more eggs, and the eggs were larger and heavier. It is possible that under these conditions that the vitamin "B" content of good poultry rations is not adequate for maximum results.

It should be mentioned here that each pen received a mash of equal parts wheat bran, wheat middlings, oat chop, maize meal and meat scraps.

If one may venture to criticise the experiment it is on the ground that the quantity of yeast used, even at 15 per cent., was greatly in excess of what was necessary; and, secondly, that the results obtained were attributed to its content of "B" vitamin.

Let us ask ourselves this question: Was it the "B" vitamin that stimulated the better appetite, better growth, high egg production, and also influenced the size of eggs and their weight?

Is there not a simpler solution? Do we not take our sherry bitters to stimulate the appetite? Does not a better appetite mean a greater consumption of food, a greater consumption of food lead to better growth? Do we not know that the production of eggs is influenced to a great extent by the quantity of food the bird consumes, and will this not influence the bodily condition, and do we not know the better the bodily condition, the better the size and weight of eggs produced?

We may be confident of this, that in a ration which contains a high percentage of miller's offals, the content of "B" vitamin will always be adequate.

I am a great believer in the value of yeast, but believe 5 per cent. to be adequate; its bitter taste makes it a good appetiser, and the protein, in combination with others, is also valuable, but to feed it for its "B" vitamin content alone, or to appraise its value on that alone would, in my humble opinion, be a bad mistake. We cannot afford, and neither is it necessary, to pay high prices for "B" vitamin.

A correspondent writes asking me to give some "alternative" foods. He refers to the formula which I gave in a recent issue, and described as the best I could give as a balanced ration for either wet or dry mash feeding. I will repeat this and endeavour to show how it could be changed to give variety, without materially affecting its nutritive value.

EDITORIAL.—Continued.

> Black Leghorns have won awards for three years in succession at Harper-Adams, and this year they are third for the breed at Burnley."

Mr. Lansley's method is not strictly the intensive system, as it is usually understood; by that is meant the total confinement of the birds, but it is so intensive that it is a matter of interest to publish his letter.

As mentioned before, we are hoping that the Council of the S.P.B.A. will consider the question of making an experiment with a specially-designed house to see whether chicks can be reared from the shell to healthy maturity under intensive conditions, and, if possible, carry it even further, and see whether it is possible to obtain good fertility, hatchability and rearability with stock bred from birds kept under such conditions. The experiment is worth while, especially in view of the unfavourable conditions which have prevailed during the past two rearing seasons.

The formula was:—

1lb. Bran.
1lb. Alfalfa Meal.
4lbs. Fine White Middlings.
1lb. Sussex Ground Oats.
1lb. Maize Meal.
½lb. Dried Yeast.
½lb. Fish Meal.

We can use nothing in place of the bran or middlings. We could replace—

Alfalfa with Clover Meal.

Maize Meal with Barley Meal, Cooked Potatoes, Maize Germ Meal or Rice Meal, or even Artichokes.

In a cooked mash the Alfalfa Meal can be replaced with any of the cabbage tribe.

A quarter part of Malt Culms or Brewer's Grains might replace the Dried Yeast, or one could use ½lb. Soya Bean Meal, Pea Meal or ordinary Bean Meal ,or even Linseed Cake Meal.

The Fish Meal could be replaced with Meat Meal, Green Bone, Blood Meal, Locust Meal, or Greaves.

In my opinion ,the original formula, as it stands, is the best, but the other foods mentioned may be used with advantage to give variety, and when the birds' appetites flag a change is often useful, but it should not be too drastic, or it may defeat its purpose. A complete change generally upsets the birds, and results in a decreased egg yield, and often in partial moult, so that it should be made gradually.

WEIGHTS OF GRAINS AND MEALS PER QUART MEASURE.

Alfalfa Meal.			**Bran (ord.).**			**Broad Bran.**		
lbs.	ozs.	dms	lbs.	ozs.	dms.	lbs.	ozs.	dms.
	9	7		6	3		4	12
	9	0		6	2		4	4
	9	0		6	3		4	4

Middlings.			**Sussex Ground Oats.**			**Barley Meal.**		
lbs.	ozs.	dms.	lbs.	ozs.	dms.	lbs.	ozs.	dms
1	—	8	1	—	—	1	2	2
	15	5		15	8	1	1	14
1	—	4	1	—	—	1	2	2

Fine Biscuit Meal.			**Large Biscuit Meal.**			**Maize Gluten Meal.**		
lbs.	ozs.	dms.	lbs.	ozs.	dms.	lbs.	ozs.	dms.
	15	12		15	8	1	5	10
1	—	6		15	13	1	4	14
	15	12		15	8	1	5	4

Meat Meal.			**Fish Meal.**			**Maize Meal.**		
lbs.	ozs.	dms	lbs.	ozs.	dms.	lbs.	ozs.	dms.
1	10	0	1	7	2	1	4	12
1	10	6	1	7	4	1	3	11
1	10	0	1	7	4	1	4	12

English Wheat.			**Kibbled Maize (Maize Grits).**		
lbs.	ozs.	dms.	lbs.	ozs.	dms.
1	13	10	1	11	0
1	13	14	1	11	8
1	13	10	1	11	0

Clipped English Oats.			**Whole English Oats.**		
lbs.	ozs.	dms.	lbs.	ozs.	dms.
1	8	2	1	6	0
1	8	0	1	5	10
1	8	0	1	5	8

The above are the weights of one quart by measure of the above-named foodstuffs, taken at separate times and by three different people.

Some Problems in Poultry Breeding.

DR. CREW'S PAPER ON SEX AT THE MIDLAND CONFERENCE.

(*Continued.*)

Then one comes to the very modern topic of the influence of the glands of internal secretion. A male was thought to be a male because it had testes, and a female a female because it had an ovary. That is entirely wrong. A cock has testes because he is a cock, and a hen an ovary because she is a hen, but there is a time at the development of the chick when so far as sex organisation is concerned there is no difference between the two sexes, the two embryonic rudimentary sex glands, four ducts, and the external reproductive apparatus the same in the two sexes.

At later stages differentiation takes place. The special sexual organs each manufacture a special chemical substance, which passes into the blood stream and affects the most distant parts of the body, and the further development of the individual is profoundly affected. These substances act on tissue commonly possessed by male and female alike ; both sexes in mammals have rudimentary milk glands, and in the case of the female the further development is affected by the particular substance passing into the blood stream. The differences are entirely in the degree of development.

The question of the advisability of the control of the sexes was outside his province. I stand before you, said Dr. Crew, avowing I want to know how sex is determined, and I am not concerned in the least whether that knowledge, when gained, will be advisable, or reasonable, or practicable, or economical to apply. That is for the statesman to decide in the case of the human, and for the breeder of live stock. The only difference between control under those conditions and such as exist to-day is that in the former case the control would be deliberate and based on knowledge.

In the case of the Jewish race, the sex ratio was very much higher than in the case of other people—far more boys were born to the Jews than is the case with other races. This is due entirely to the fact that the Jewish mother practises a very superior form of pre-natal hygiene. The Jews are definitely at present manipulating the sex ratio by saving the boys, which in the case of another people would die, and his point was that in the case of the fowl, if they had more knowledge, and by some improvement in husbandry, they should be able to disturb the sex ratio ; whether it was moral or good was another matter!

The question of the effeminate man and masculine woman had been raised by Mr. Palmer. This was a question of very considerable importance, not only in human affairs, but essentially to the breeder of cattle, because in the case of cattle there are two distinct groups—milk and the beef. In the beef breeds was it a fact that the masculine type of cow was chosen, and in the milk breeds they chose the effeminate type of male? The qualities of vigorous maleness, or, on the other hand femaleness, are the properties of the sex gland itself as a functioning organism, and have nothing to do with the sex-determining organism. In the goat, as Mr. Caselry had mentioned, it was fairly common to get hermaphrodites—2 per cent. in all births. His interpretation was that this 2 per cent. are always abnormal males ; he had proved this in all his investigations, and was a relief for the goat breeder, for he could sacrifice the hermaphrodites without much loss. By increasing litter size in pigs they were really saving the males, which otherwise would not be born. The hen was entirely responsible for determining the sexes, and definitely lays two sorts of egg, male and female ; and it might be possible to develop female or male-bearing strains, but it had never been done.

The ripe egg becomes ripe by a process of division. In one half are the "X" and the other half the "Y"—the male and female—but it so happens that one half aborts, and it may be the "X" or the "Y" which is aborted, and the problem was how to manipulate either the "X" or the "Y" into the aborted egg. You can do this. It is not only the chronological order of the egg, but a change of nutrition, the ability on the part of the hen to assimilate what it is given; it is not only a variation in the sort of food, but variation in the ability of the hen to assimilate. Had the sex ratio any relation to the age of the parents? It may be so, but the records were statistically imperfect. The matter of the chronological order of the bulling period mentioned by Mr. T. R. Robinson was a theory discovered every year, but it had no scientific foundation. The theory went on the assumption that the two ovaries in the cow functioned alternatively, but there was nothing in the theory supported in the least by any satisfactory scientific fact, and yet it seemed to work ; and he knew a great many breeders who implicitly believed and practised it and were satisfied. But, in betting parlance, it was always a good sporting chance—evens. If there was anything in the theory, however, if he removed one ovary from the cow then there could be only one sex born. He had done this, but it was not so.

As regards Capt. Peirson-Webber's question, it was entirely a matter of differences in chemical constitution of the egg, and sex had nothing to do with the size and shape of egg. As regards specific gravity and density of egg content, he was hoping someone would take that up and investigate.

In conclusion, Dr. Crew said : There is nothing I know, from my own experience or that of others, which supports the assumption it is right or fair to advertise birds as L2. The L2 bird, according to the advertisement, is one which has inherited the sex-linked factor of high fecundity from its parents. I warn you that, in my opinion—and I think my opinion is worth consideration—you are either deceiving yourselves or your customers. The assumption is based on what was a purely scientific experiment carried out under laboratory conditions. Pearl had to group his birds into those which laid no eggs in winter, those which laid 30, and those over 30 ; and you all know that if he had changed his poultryman he would not have got as many birds in one class as he did. You know you, as practical breeders, could have made, if you liked, the 30-egg birds lay, say, 45. The experiments were conducted with certain individual birds belonging to two certain strains of two breeds, and the conclusions that Pearl drew from his experiments had no application whatsoever to other experiments of the same sort. His interpretation of L2 was legitimate on the facts he obtained in his own particular case, and they are not applicable to others. I would suggest before you use L2 as a business proposition one should thoroughly investigate the matter, and whether it is based on absolutely critical scientific foundation.

(Continued at Foot of Next Column.)

Lice on Poultry.

By J. G. R.

It is difficult to determine which variety of the commoner external parasites of poultry is responsible for the greatest amount of loss to the poultry-keeper, but it can be stated with certainty that lice rank high amongst those which do most to reduce profits from poultry-keeping. These parasites may be found to a greater or lesser extent in the majority of poultry flocks, and if they are not attacked intelligently and kept in subjection by persistent effort they may safely be expected to retard egg production, hinder normal growth and development, and reduce the quality and quantity of the flesh of all classes of domestic poultry.

While many progressive poultry-keepers realise the truth of this assertion and wage continual war against lice, there are, unfortunately, too many who still neglect the very essentials necessary to prevent an infestation, or to adopt measures that are calculated to guard against the spread of an attack. The poultry-keeper may specialise in strain, and feed in accordance with the most approved and scientifically-founded principles, but if what sometimes appears to him to be a mere detail—the cleanliness of the layers—is neglected, egg production will not or cannot reach a maximum. Likewise, the most expensive incubators, brooders, and other appliances for the hatching and rearing of chickens may be installed, and the system of feeding be of the best, and still the chickens may not thrive satisfactorily. Why? Oftentimes because of the presence of lice introduced quite unconsciously with some chickens that were brooded by a lousy hen. Again, expensive eggs may be purchased from noted breeders, and set in approved nest boxes in properly-constructed nests, with unsatisfactory results. Why? Frequently because the hens used to brood them were infested with parasites—the activities of which tended to dissipate or even destroy the broody condition prior to the completion of the hatching period.

How Lice Live and Feed.

Contrary to popular belief the true poultry lice do not—in fact cannot—suck blood unless possibly from a wound or bruise. In this respect they differ from the Red Mite. The structure of the mouth of a louse shows that biting and not sucking is the normal method of feeding. Lice live on pieces of feathers and on the scales of the bird's skin. It is the constant irritation caused by this biting at the skin and by the sharp claws as they crawl over the bodies of their hosts that is responsible for all the ills which follow in the train of an infestation. The irritation causes continual unrest and unhappiness, the appetite becomes impaired, and the constitution and vigour of the bird eventually weakens. Moreover, various other diseases and troubles of poultry may attack birds which have become thus weakened. This is particularly true of chickens, for if lice are abundant the growth of the birds is seriously checked, and various ills, such as diarrhoea and possibly roup may follow later.

Life History.

Lice live throughout their lifetime on the attacked birds. They do not migrate to crevices during the day, as is the peculiarity of the Red Mite. They, however, migrate readily from bird to bird, especially when the birds are perching, during copulation, etc. There are several different species of lice which attack poultry, but the life history follows the same lines with each species. The female louse lays small rounded and sculptured eggs upon the down feathers, sticking them thereto so that they will remain there until hatched. Oftentimes large clusters of eggs may be found in the vicinity of the vent. The eggs hatch in from six to twelve days, and the little lice which emerge from the eggs are similar to their parents, but smaller. Even at this young age they are capable of doing considerable harm to their hosts. After about 20 days they are fully grown, and in turn proceed to mate, and the females to lay eggs. It is thus easily seen how very rapidly a small infestation, if not dealt with summarily, will become a grave problem for the poultry-keeper, and a serious menace to the lives of the attacked birds.

Different Species of Lice.

A great many species of biting lice have been observed on poultry. Probably the most troublesome in the country is the crawling body louse (Fig. 1), so-called because it is commonly found on the body, although it may also go to the head, neck and thighs. It is comparatively large and may easily be seen on infested birds running along the skin seeking the protection of the feathers when the latter are parted. It is yellow in colour and stout in build. The small narrow shaped louse (Fig. 2) is also fairly prevalent, and is often found in large numbers on the heads of chickens. A closely related and similarly shaped species is commonly found amongst the feathers of the wings. It is known as the wing louse. Fig. 3 is another species of louse found on poultry. Though probably not so common as the preceding, it is frequently met with in restricted numbers on older poultry. It seldom occurs on chickens.

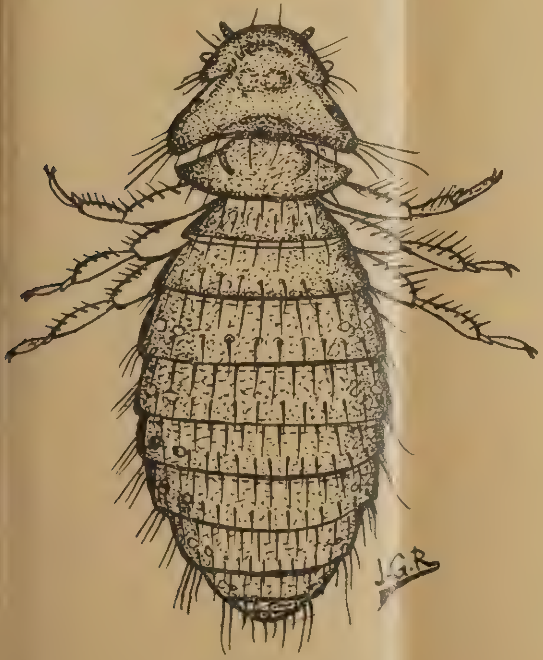


Fig. 1.

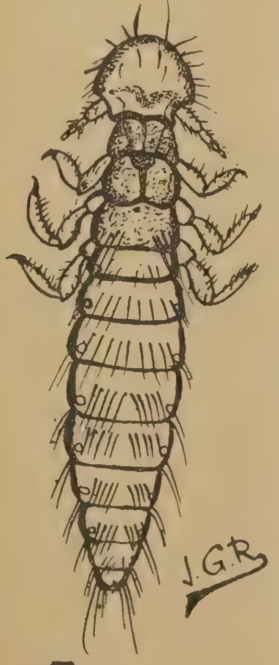


Fig. 2.

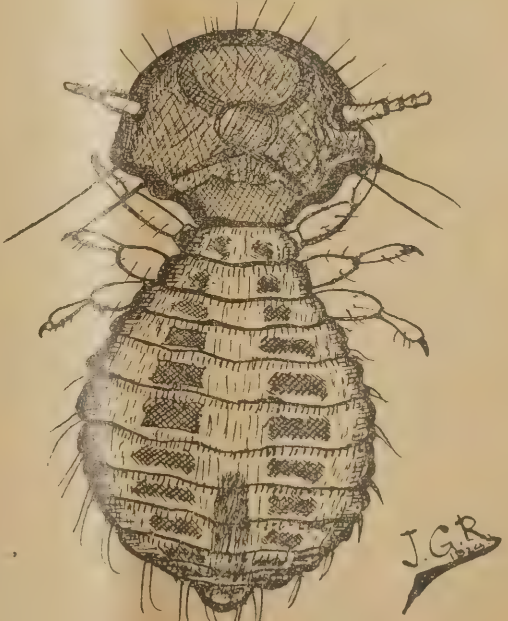


Fig. 3.

Prevention.

The importance of keeping the poultry free from infestation cannot be too strongly emphasised. This may be done by providing dust baths filled with ashes, road dust, dry earth, or other suitable material, into which is periodically mixed a liberal quantity of flowers of sulphur, tobacco dust, or sodium fluoride. If an efficient dust bath as described is in use, the worries resulting from lice infestation will be small. The practice of examining all new purchases, and of treating infested birds before allowing them access to the home flock, is one that should be universally adopted. It is sound. Chickens hatched by hens should be examined carefully before putting them amongst other chickens hatched by the incubator. There is no excuse whatever for lice on incubator-hatched chickens.

Remedies for Lice.

Fortunately lice are easily killed, and consequently the treatment is not a prolonged one. An intelligent knowledge of the life history of the pests is, however, very essential. Any reliable insect powder, such as Cornell Powder, or fresh pyrethrum powder, dusted well into the feathers, will kill lice which are actually there at the time of application. These powders will not destroy the eggs of the lice, and for that reason one dusting is not usually sufficient. Sodium fluoride, a comparatively new insecticide, has been found to be highly efficient in the control of lice. It is a white powder, and, beyond having a slight smarting effect on the eye, if not applied with care, is a safe remedy. Small quantities of this powder taken between the thumb and forefinger and applied to the breast, each thigh, below the vent, on the neck, on the underside of each wing, on each side of the back, and on the head, will be found adequate. If mites are present in addition to lice, flowers of sulphur in the proportion of one part to two parts of sodium fluoride, should be added. A second dusting given about seven days after the first should be sufficient to rid the birds completely.

Finally, cleanliness in the poultry house will go a long way towards the solving of the louse problem. Periodical cleaning and disinfecting should be the poultry-keeper's sheet anchor, for where thorough cleanliness is practised, parasites fail to gain a foothold. If filth and dirt abound, lice are almost certain to abound also.

Avona, Bramhall, Cheshire.
23rd Sept., 1924.

Dear Sir,—I find "Eggs" a splendid paper for advertisements. I have always been most successful with my advertisements in "Eggs." I advertise regularly.

Yours faithfully,

(Signed) CORA PARISH.

West Crosshill, East Kilbride, Lanarkshire.
3rd October, 1924.

Dear Sir,—I would like to add my appreciation of "Eggs." It is the finest publication in the industry.

Yours truly,

(Signed) (Mrs.) M. GILMOUR.

Wet Seasons and Disease

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

One does not like to issue a Jeremiad. It is a more popular thing to prophecy smooth things, but if one may offer a timely warning, the damage accruing from a persistently wet season may, to some extent, be averted or better combated.

We have to recognise that many of the diseases of poultry are due to miscroscopic parasites present in their food, and that bad harvesting causes the indefinite multiplication of these pests, whose bodies, or whose waste, set up disease as a "pestilence that walketh in darkness." Did the author of the above quotation himself "see through a glass darkly," and suspect pathogenic organisms? If so, to him must be given the credit of the founder of what we believed to be a modern science. Just as there are aerobic and anaerobic organisms rejoicing in oxygen, or propagating only in conditions where it is excluded, so are there lowly forms of vegetable life which thrive in moist conditions and perish in sunshine; but not all, for it is a law of nature to produce a percentage of immunes, and a few sites, in which a breeding remnant struggle through adverse circumstances, and play the part of the Noah family. We shall never exterminate them wholly. They even have their apologists among naturalists, who suggest that they may possibly play some benevolent role in the great scheme of the universe, and are, at least, justified in pointing to their utility in maintaining the balance of power in the animal world. If it were not for bacterial disease overtaking caterpillars and house flies, homo sapiens himself might perish through what are now generally recognised as "carriers."

Coming down to brass tacks, we need not infest our fowls with mildew or mould diseases by using damaged grain or straw which will be of lower price than the bright and clean; nor should we employ moss litter, which from its source must necessarily contain more of the aspergilli than any other litter available. We want our corn dealers, as well as poultrymen to realise that the best is the only quality suited to our purposes. In this matter the traditions are against us. The merchant, the retailer, and the mixer, the miller, and even the weaker members of the poultry cult, have not freed themselves from the belief that anything that is not good enough for the other animals of the farm will do for the fowls which are omnivorous feeders.

Aspergillosis is the term applied generally to infestations of mould fungi, of which the A. fumigatus is the greatest offender. It affects the young most disastrously, and many cases of wasting or going light among adults is attributable to this fungus, but often not recognised for want of a microscopic examination. In the thousands of young chicks examined after death during the past season all stages were recognised, but in the majority the tubercles in the lungs were so marked as to not need the magnification of an nstrument. Amateurs making post-mortem examinations have fallen into the mistake of attributing these nodules or tubercles in the lungs to tuberculosis, but the latter is rarely if ever present in quite young chicks. That a goodly number of our readers are familiar with the microscope is evident from their letters; and to these one would point to the fact that the aspergilli are morphologically wholly different from the tubercle bacilli. If a lung nodule is teased out with needles and mounted on a slide, there will appear a picture of what looks like a bed of thistles in bloom. Last year I made a rough sketch of such a bed and showing the intertwining mycelium. (Oct 31, 1923).

Unfortunately it is a fact that the A. fumigatus is very widely distributed in Nature, and every damp spot in the fowl-house or other shady situation is a potential home and garden for its cultivation. A frosty spell in winter may be made the occasion for a thorough cleansing out of all corners and possible harbours for the fungi, and the exposure to the beneficent influence of a low temperature and a keen draught during the short hours of day-light. It should be borne in mind also that dry disinfectants can be shaken or blown into corners. Winter disinfection compares with the capture of the first queen wasp in the spring, in its bearing on productivity. We cannot see nor estimate the immense influence of winter cleansing, the use of the blow lamp, or the spraying of petrol, or of formalin. As we wish to avoid damp inside we should prefer petrol as evaporation is so rapid, while remembering that nothing will stay in a crevice which is being sprayed with it.

People who have not studied the life cycles of parasites have to exercise a good deal of faith as to the merits of such recommendations as those above made, and it is, therefore, necessary that the master should himself superintend and encourage the operator to be very thorough in carrying out the work which seems rather a blind business to the same man who would put a lot of energy into destroying visible insects in August when they swarm upon his own person after handling birds and equipment. He will be impressed, perhaps, by telling him that the crusts which have fallen from bird pox have been proved to retain their vitality after five years, and that one pair of mites can have a million descendants during the coming season.

Already we have received cases of diphtheritic roup, and of a most malignant type. It is to be feared that the winter before us will be very productive of catarrh, catarrhal roup, and the diphtheritic form in which a ring of fungus forms in the opening at the back of the tongue, and grows so rapidly that the tube is blocked and the bird dies of suffocation. The greatest difficulty we have to contend with in this terribly fatal disease is the absence of any particular signs of distress. As long as the bird has a narrow lane through which air can pass, it does not appear distressed, but dies suddenly without the owner suspecting the nature of the malady; rather does he suspect poison.

One cannot too earnestly impress upon poultry-keepers the importance of instant isolation of every bird that appears to have anything the least the matter, or fails to feed heartily with the flock. Better be troubled by many false alarms than allow one bird to be a centre of infection. Readers will appreciate the reason the Editor had for altering the rules about post-mortem examinations if they believe what has been stated above. It is of the utmost importance that the flock-owner should be informed at the earliest moment if a bird sent for examination proves to be the victim of infectious disease.

(Continued at Foot of Next Column.)

On Breeding.

By G. C. HESELTINE.

IN-BREEDING (III.) continued.

In last week's article it was endeavoured to show that indiscriminate in-breeding was not only pointless but dangerous. In-breeding, to be useful, must be done for a specific purpose, and with a knowledge both of the birds concerned, their genetic factors, and the mode of inheritance of those factors. It may be objected that many of the great number of successful breeders of show bantams, for example, knew nothing of genetic factors, but they still relied on in-breeding for their results. It is true that they may have had little knowledge of genetics in the concise phraseology of the modern scientist, but they did know that certain characters (colour, for instance) were never present together in the same bird, though they might appear in different birds from the one mating; they also knew that some birds had a greater tendency than others to give progeny with particular characters; they also knew that some characters "overshadowed" others and that some re-appeared in alternate generations, and so on. Their knowledge, though not tabulated or systematic, was still a knowledge of the genetic factors concerned, and it was sufficient for their purpose.

To return to in-breeding itself, having understood that it must not be practised haphazard or by the inexperienced, it is well to have a clear idea of its nature and effects.

In the first place, the breeding of all domestic stock has been largely concerned with selection for particular objects. Cattle have been selected and bred for meat, quality and quantity, and for milk. Fowls have been selected for meat and eggs. All stock has been bred to carry more of a particular factor than is carried in the wild stock from which it was originally drawn ages ago. What are to us desirable characters have been selected, and characters apparently useless or undesirable have been ignored or excluded. Nevertheless, genetically speaking, all the characters of the wild parent stock are **still present in the domesticated race.** They may not all be present in the one bird or breed. But when birds of a race, such as the domestic fowl, are allowed to mix and breed together indiscriminately, the genetic characters which they carry are, as it were, all thrown together. The natural affinity of one character for another, the affinity which was evident in their arrangement in the natural state of the parent stock before it was interfered with by man, is allowed free play again. In very few generations the factors sort themselves out into their original natural arrangement, and the stock becomes more and more like the wild parent stock. It is said to "revert" to the natural state.

In-breeding is the means resorted to for the very opposite effect to that first mentioned. It is the means of intensifying and fixing a particular selected character or group of characters. In in-breeding we are, therefore, concerned with opposing the natural tendency to reversion.

How does in-breeding oppose the natural tendency to reversion? It is said that "like breeds like," or, as it was expressed in the first article of this series, "You get out of any mating, sooner or later, what you put in." The progeny is like its parents because it carries the characters which were put into the mating. Thus the child is like its parents—it is like both of them, but unlike either of them. A child is sometimes said to have its father's nose, but its mother's eyes; to be tall like its father and fair like its mother. In so far as it is like its father, in being tall, it is unlike its mother who is short (for example).

Now if a child is born of parents who are **very different,** it is clear that it will differ from either of them more than it would if they were **very much alike.** If both father and mother were tall, the child, in being tall, would be like **both** of them. Other children in the same family would probably be all tall (particularly if the parents came from tall families). But in the case of the tall father, short mother, it may, and often does, happen that some of the children are tall and some are short. In other words, there is more variation in the progeny.

It will thus be clear that when very similar birds are mated the variation in the progeny will be less than when very different birds are mated. This is the chief justification for pure-bred stock. Since the birds which are mated have all been bred to one standard they are very much alike, and the chances of variation in the progeny is less than when two birds of quite different breeds are crossed. This applies to the factors controlling egg yield as well as to those controlling external characters, such as colour and shape.

It follows that the greatest consistency and uniformity of progeny, being obtained from parents which are very much alike, will be obtained from birds which are related (or from the same family). The reason for this is that birds in the same family have fewer ancestors to which they can revert; their immediate ancestors have all been selected for the same points to the exclusion of other points, and therefore the desired points will predominate. That is why in-breeding is practised. Each mating of related birds, carrying the required characters, puts the undesirable characters further back in the ancestry of the birds and reduces the chances of reversion. This is the fixing of the characters.

(Continued at Foot of Next Column.)

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership **(NOT from Capt. Leeney).**

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

Novice (High Halden). In answer to your letter, I pointed out to you in June that it was almost hopeless for your to expect a profit from table poultry hatched in that month and marketed now. This prediction your letter proves to have been correct, and it has been confirmed by Mr. Clarkson. The failure to make profit was not due to the excessive cost of food, but to the prices realised. You now ask whether you can lessen the cost of feeding by using a high percentage of maize, and tell me that a fattener in your neighbourhood has done so with success. In that event I can only advise you to follow his methods, if he can give you a practical demonstration that he is right. The chief objection to using maize in large quantities for fattening is that the birds develop internal fat, which is not wanted in high-class table poultry; in the early stages you must not use too much maize, otherwise you will not get the frame you require. Now, with regard to the Wellingham experiments. The success of these was mainly due to the fact that we were able to use a very high percentage of dried milk, which was then obtainable at an economical price. Those days are past, and the formula would not help you now. This season we used with great success the following, and you may like to give it a trial :—20 per cent. broad bran, 45 per cent. fine white middlings, 10 Sussex ground oats, 10 rice meal, 5 each dried skim milk, dried yeast and soya bean meal. This was fed as a dry mash ; but I suggest to you that, as you can obtain liquid skim milk, you would do better if you omitted the dried milk from the formula, and mixed it with the liquid. It is most important that you should give the chicks food which is easily digested from the first, and for that reason cooked grain would be better than grain in its raw state. I do not think there will be any special features at the Show which will help you in fattening. If you decide to use maize, it would be wise to use white maize, not the yellow variety.

Moult (Lancashire). The most probable explanation of the pullets falling into a moult is that they suffered a severe fright when the house was blown over ; this made them very nervous (a nervous bird will not assimilate its food properly), so that they get out of condition and moult. I think you are doing all that you can ; the only suggestion I can make is that you replace the barley meal with biscuit meal. No, I would not try a night feed while the pullets are in this nervous condition, it would probably make matters worse. You must keep them as quiet as possible. (2) The cockerel seems to be thoroughly out of condition. Give him a little cod liver oil every day, and some carbonate of iron in the drinking water. Many thanks for your appreciation of "Eggs."

G. N. (Lanark). It is a mad idea this giving Epsom salts once a week. Whatever do you think is to be gained by it? Reserve the salts for your sick birds ; you have evidently overdone it, and consequently your birds are out of condition and you are getting no eggs. The best preventive of disease is healthy breeding stock, well ventilated houses, good feeding, and cleanliness. Dosing the birds with salts only makes them anaemic and lowers their resistant power, the best thing you can do now is to feed them well, and give them some carbonate of iron in the drinking water.

J. B. (Whitby). As you want a "definite answer to a definite question," I will give it you. It is nice to have a "definite" question at all times, as very often they are indefinite, and one has to guess what is meant. Well, then, in my opinion, all chicks are carriers of the Bacillus Pullorum, and it becomes active and causes Bacillary White Diarrhoea, when from any cause the chick's vitality is affected and its powers of resistance lowered; that is only a personal opinion, and you must take it as such. Certainly these conditions may arise in the incubator—anything which weakened the embryo, such as chill, over-heating, or the chicks becoming chilled after hatching by remaining too long in the nursery drawer, or when being transferred to the brooder, or even in the brooder for the first four days. There is no known method of prevention or cure. By taking precautions to avert these things occurring you will help matters. No, there is nothing that you can put in the drinking water that will help. (2) Please see the formula for dry mash given under "Modern Poultry Feeding" in this issue. I can give you nothing better. (3) If you mate Rhode Island Red cockerels with White Wyandotte hens, the sex of the chicks can be determined at hatching ; the pullets will be red or buff and the cockerels white or silver.

Worried (Benton). No, my friend, I don't think you have had "bad luck"; you would be wise to get rid of that idea, for people who are always bemoaning their luck never get far in this world. You have simply been carefully careless—that is to say that, although you have carefully weighed out the proportions of the food each day, you have not been equally careful to see that your pullets have had enough, and the result is that they have been seriously underfed. Hence their backwardness and the lack of eggs. There is nothing wrong with the formula, and you will not improve matters by putting the birds on dry mash. Just increase the quantity of mash by 3 lbs., and the grain by 2 lbs.; spice will not help you in the least, I'll warrant the pullets' appetite is good enough. (2) A Wyandotte cockerel hatched late in April will not be mature enough to mate next season. (3) Houdan-Buff Orpington is a first-rate table cross, and the pullets are quite good layers.

L. T. S. (Barnstaple). The best duck for your purpose would be the Buff Orpington. (2) You cannot use maize for fattening table poultry in any quantity, as this results in internal fat which is not what is wanted. You could use ground oats, cooked potatoes, barley meal, and middlings in equal parts ; a quarter part dried yeast added would improve the appetite, but it would be better still if you could mix the mash with sour skimmed milk. (3) Your pullets are doing very well. To bring the late May-hatched birds along, give them an extra feed by lamplight. The best thing would be to cover some good plump oats with cold water, and let them simmer on the fire until the water is absorbed, and feed this in troughs. (4) The sample of bran is of good average quality, the clover meal rubbish, maize gluten contains too much offal and is not worth half the money ; the ground oats are good, barley meal contains too much husk, meat meal a good sample, sharps just fair, biscuit meal good.

J. W. D. (Droylesden). In answer to your questions. As you leave for work at 7.30 in the morning and do not return until it is dark, you are wondering how you can give the small grain feed in the morning and the rest of the ration before they go to perch. Well, of course, you could throw the grain in the litter before you leave and open the mash hopper. The difficulty is in giving the balance of the grain at night, as you do not return until dark. There are only two ways of overcoming this : one is to get an automatic feeder, and the other, to give the birds a feed of grain by lamplight. Possibly you would get better results from the latter. I do no think you can rely on the birds from your friend to select a male from, in spite of the fact that they have been all trapped for the six months and have records of 100 and over. It would be better to buy a pedigree bird, I think, from either him or Mr. Snowden ; it does not matter which. Yes, the piece of land you describe would be quite large enough for the pullets.

J. P. (Bromsgrove). I really cannot tell you how to heat a brooder house with gas instead of oil or hot-water pipes. Such an atmosphere would not be so healthy as the latter. At present I do not know of any brooder house heated with gas.

W. M. B. G. (Co. Derry). The sample of bran is poor and very dear at the price ; the middlings and maize meal good, the meat meal fair, the clover is hardly good enough.

J. W. W. (Chorley). You can obtain full particulars of the examination for the National Diploma Board by writing to Mr. Edward Brown, Secretary of the National Poultry Council, 20-21, Essex Street, London, E.C.2. All the information you require can be obtained from him, with a syllabus and copy of the examination papers of this year.

"In Doubt" (East Durham). You say your pullets are a little backward in coming into lay, but you do not tell me what age they are. Your feeding seems quite correct, provided the ingredients are of good quality. I suggest, however, you might increase the fish meal now to 1 lb., and give a heavier feed of grain as the last feed. As the birds are on free range, it is quite unnecessary to give them any grain feed in the morning ; give them two ounces per bird at night, and keep the mash hoppers open all day. As they have new clover to feed on, it is unnecessary to give alfalfa meal in the mash. I would just examine the perches and see that there are no signs of red mite, as in so many cases we find birds are backward which are well fed in every respect, and the houses quite clean, but still the red mite exists.

"Bishop's" (Stortford). The sample of maize germ meal is perfectly satisfactory, and the Cloalfalfa is also very good. The ground oats are not "Sussex" ground, but they are good value for the money, and would answer the same purpose. The broad bran is an ordinary sample which has been passed through the rollers twice and flattened out, but it is a fair sample. The middlings are of good average quality.

E. H. N. (Millhouses). I am glad to hear that the majority of the pullets are now laying. With regard to the few that do not appear to be quite up to the same degree of physical fitness, and are consequently bullied, the only thing you can do in this case is to remove them from the flock and feed them separately. In fact, if you do not do so, they are likely to be of very little value. Of course it is always very difficult for me to estimate the value of house-scraps ; you must judge whether the ration is satisfactory by the health and condition of your birds and by their performance. You must take care not to get the White Leghorn hens ,which are just starting to moult, in an over-fat condition. The danger period here arrives when they have regained their plumage. No change need be made if the birds come through the moult satisfactorily. It is such a mistaken idea to think that a well-fed bird needs any addition or subtraction from its ordinary ration. If a bird has been fed throughout the year on a well-balanced ration, then it supplies all that it necessary for the growth of feather. As I have said so many times previously, it is not a question of adjusting the food to the temperature or the climatic conditions. You must consider the bodily condition of your birds, and not add maize because it has suddenly turned cold, and change it to oats because it is a little warmer. Always bear this in mind, that if your birds are in good bodily condition they will not be affected by changes in temperature, and that an under-fed bird is in no better condition to resist an attack of cold because she is given a little maize while the east wind is blowing.

L. B. (Doncaster). From the ingredients you mention, the best mash by measure would be :—Four bran, one clover, four middlings, two ground oats, half pea meal, half meat and bone meal or fish meal. I am pleased to hear that your batches of chicks have done so well on the formulas taken from "Modern Poultry Feeding."

DUCK QUERIES.

C. E. R. (Derbyfields). I have never heard of any method by which ducks can be induced to lay only and always at a time which is convenient to their owners—i.e., before 9 or 10 a.m. I agree with you that it is most unreasonable and inconsiderate of them to postpone operations till late in the afternoon! However, I do not think you can do anything to prove this to the delinquents. If you exercise patience you will probably find that they will, of their own accord, come to see that an early hour really suits them best as well as you! You might leave a pot egg in their nest, and of course see that there is a convenient place for them to lay in their right quarters, though, as a matter of fact, ducks seem to prefer the middle of the floor or anywhere they happen to be.

E. (Bartrim). Has some young K.-C. drakes, and wishes to know which should be kept as a stock bird. I presume these drakes are all bred from the same pen and not from an individual dam. This being so, there is no choice as regards inheritance of fecundity and you can only choose by constitutional vigour, evidenced by quick growth and activity, handling, general appearance and colour. If these drakes are related to the ducks they are to be mated to, and even if not so related, unless you know that they come from high-fecund stock, I should advise you to obtain one from a trap-nesting pedigree breeder, who can guarantee a dam's record of not less than 250 eggs. As to colour, I am not a breeder of K.C.'s, and am not at all sure of standard colouring that is fashionable in drakes, but if I remember rightly it is as follows:—Head and neck, dark; breast, stone coloured; back, khaki, with dark on wings and tail ends.

E. M. (Foxhill). You will find no difficulty in getting fertile eggs for hatching from I.R. ducks, though they have no swimming water. In fact, the absence of such water will make no difference at all. You can quite safely invest in a drake. One-year-old ducks can be bred from, but they should not be less than ten months old; the same thing, of course, applies to the drake. Personally, I prefer two-year-old ducks mated to a first year drake.

SEYMOUR SHAW.

POST-MORTEMS.

B. A searching and minute post-mortem examination of the W.L. pullet failed to reveal any lesions of active or infectious disease, but the heavy louse infestation from which she was suffering is quite sufficient to account for her debilitated condition. The whole carcase showed a lack of stamina, and she was also the subject of rickets.

R. C. The post-mortem examination of the R.I.R. cockerel showed the cause to be apoplexy both of the lungs and brain. The heart was greatly enlarged, and the excitement of feeding time probably caused a sudden rise of blood pressure which the blood vessels were unable to withstand.

P. We have examined the R.I.R. hen and confirm the opinion that it is infectious vent gleet, and that the most ready means of spreading is by the cockerel, whom we are glad to learn you have removed. A specific organism causes it, but at present no protective vaccine has been procured. For treatment we recommend first washing with much soft soap and warm water, and immediately after it, the free application of the following lotion, repeating it at least once a day:—Chinosol, 15 grains; glycerine, 2 ounces; water, 18 ounces. It is a debilitating malady, and a generous ration should be allowed.

F. We find this bird affected with diphtheritic enteritis, and regard it as infectious to a high degree. It is rather an unusual form of the malady, and the ulcerated patches in the gut would be the means of passing out the infectious germs with the droppings, with great risk to the contamination of food and water. It is desirable to segregate all suspects and sweep up and burn all litter and disinfect the soiled places, and, if possible, remove to a distance. In addition to these precautions we would recommend giving water to drink containing 50 grains of sulphate of copper to the gallon, excluding all other water. This might be given to the whole flock as being suspect.

F. C.-B. The post-mortem on the Leghorn hen, No. 264, showed the cause to be peritonitis, due to inflammation of the oviduct from "egg binding." The ovarium was also diseased, there being many dead yolks on the "stalk."

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

UTILITY DUCK CLUB.

The Council of the Utility Duck Club has arranged to distribute, at very low prices, sittings of the most popular breeds of ducks. These sittings have been given to the club by many of the best-known breeders, and it is hoped by the Council that those who are anxious to begin duck keeping will take advantage of a unique opportunity to obtain eggs of first-class strain at a price far below what would ordinarily be charged for them. Any purchasers joining the club will have the advantage of expert advice on the hatching, rearing, and management of their stock.

These sittings may be booked at the Club Stand, No. 219, in the East Gallery, during the Dairy Show, Agricultural Hall, Islington, where full particulars of the scheme will be obtainable.

Fruit farmers, general farmers, smallholders, and private persons will all find ducks a profitable and interesting investment, but as the supply of sittings is limited, those who wish to obtain them should book as early as possible.

Oldroyd Utility P. Farm,
Todmorden, Yorks.

Dear Sir,—I should like to express my appreciation of the value of your periodical "Eggs," of which I have been a reader for some years. There is no doubt whatever, it is the paper that all poultry-keepers should read. Personally, I have consistently recommended it to my many poultry friends, and until recently, whilst Secretary to the Clitheroe P. Society, always made a practice of taking it to our Club Room. Wishing the S.P.B.A. and "Eggs" every success.

Yours sincerely,
(Signed) G. BROOM.

Marsh Daisies.

Notes by FRANCIS J. HEMELRYK,
Vice-President, Marsh Daisy Club.

For very obvious reasons one naturally feels an innate modesty in writing about a subject in which one is personally interested. Your editor has, however, very kindly invited me to amplify the remarks I made in a short article in the 9th April number of "Eggs," so I gladly do as I am told, with a clear conscience. I feel encouraged to do so by the flood of letters from all parts of the world received six months ago, when I first drew attention in "Eggs" to this little known breed, the inception of which is due entirely to British genius.

LIVING CONDITIONS.—After the bright and sunny summer we have just survived many have possibly been asking themselves whether the breed of fowls they keep is the ideal bird to live in a swamp.

My good friend, Mr. Stott, sends me two snapshots, illustrated below, which were taken last summer (pace the clerk of the weather), and assures me that his birds declined to allow these cheerful conditions to interfere with the serious business of life., i.e., egg production.

Our President, the Hon. Alice C. Hawke, whose charming residence is situated quite close to the River Arun and its marshlands, assured me a few days back that her birds continued their work in an exemplary manner all through the drenching weather we have had, and I can confirm this from my own experience here in Partridge Green. I must, in fairness, add that my own land all slopes nicely to the south, so that I am always comparatively dry.

BROODINESS.—Broodiness is counted by some poultry-keepers as a virtue almost to be encouraged. Beyond the one bird, hatched in May, to which I drew attention in my last note, I have not had a single case of broodiness, and she has not repeated her one offence. I attribute this possible broodiness as due to late hatching, and to guard against this and other very well-known defects I refuse to hatch any birds in May, and decline all orders for sittings to hatch out after April 30th.

So many people (I allude to the private poultry-keeper) leave their hatching until too late, and then write for sittings. I should like to see the S.P.B.A. take a strong line in this matter, and not only warn their members, as they have done, against this late hatching, but perhaps even close their advertising columns dealing with May and June sittings.

I may be quixotic, but surely we members of the S.P.B.A. should aim at that excellent slogan of the Rotary Clubs, "Service, not Self," and leave that catch-penny trade to what I call the advertising specialist.

To revert to broodiness, if you do require broodies for setting eggs surely others breeds can be found to furnish you with all your requirements. I keep a few of Light Sussex and R.I.R. for that purpose.

DUAL-PURPOSE FOWLS.—Most of the readers of "Eggs," being doubtless also members of the C.P.P., Ltd., have got very seriously to consider how we can best support that most excellent movement. If we propose during the coming season to supply them with half a million Leghorn cockerels and nothing much else, I for one shall be delighted to sell my shares, few though they are, at a penny each.

However, to return to my point, the Marsh Daisy cockerel at sixteen weeks is as choice and tasty a morsel on the table as one could possibly wish for, and I propose asking the C.P.P. to accept as many cockerels as possible, because they will be pleased, and I know their clients will ask for more.

Fineness of bone and consequently little offal, and not big coarse birds, are, after all, points to consider, and the Marsh Daisy possesses these virtues, as also fine white flesh of the best quality and texture, with the much sought after gamey flavour.

EGG PRODUCTION.—I have— without, I trust, wearying you with masses of figures—dealt on a previous occasion with the question of egg production. For the benefit of those who did not see my note on April 9th, I might very briefly recapitulate my previous remarks.

1. We do NOT produce "300-egg" birds, and I hope we never shall, as that spells doom of a breed.

2. We have plenty of birds laying from 200 to 240 eggs a year, not only in their pullet year but also in their later years.

3. The egg is a tinted one and well up to weight. We claim that the Marsh Daisy does NOT, even as a pullet, lay a second-grade egg.

LAYING LIFE.—This leads me on to a point which, I think, all will agree is the most important. The egg farmer, as a rule, discards his birds after two years. Most of us Marsh Daisyites keep our birds for four years instead of two, because our egg production does not diminish to any appreciable extent. That means we need only renew a quarter of our flock annually instead of a half, a very material factor to the poultry-keeper, as the cost of renewals is halved at a stroke and the cost of feeding growing stock to the producing stage is reduced by 66 per cent. Some Marsh Daisy breeders keep their birds for a fifth year, and recently a Yorkshireman offered to lend an incredulous fellow breeder a pen of five-year-olds so that he could test his assertion of their capabilities for himself.

I have never kept them so long myself so we will leave it at that, but I have just received a letter from a well-known breeder of Marsh Daisies who, inter alia, says :—" I bought a four-year-old hen two months or so back and mated her to my best cock. I have eleven big bonny chicks out of twelve eggs, and they are doing well. This hen lays four eggs in five days regularly." He adds that he is keeping this hen with some other four-year-olds for another year at least, if not longer.

SEX-LINKED INHERITANCE.—I mentioned in April my cross, L. Sussex x Marsh Daisy, which gave me sex-linked inheritance. My early hatched pullets have been giving me a nice lot of eggs, and I hope later, when I have their winter trap-nest records, to give you the actual figures. So far I may say I am so very pleased with the results that I shall extend my operations in this direction as far as my accommodation permits. My cockerels from this cross also gave me a handsome profit.

SMALL SUPPLIES.—A last word and I have finished. I have often been told " You talk a great deal about these Marsh Daisies of yours, but I never see them advertised in the poultry papers and consequently I am inclined to think they cannot be much good." Yes, my critic is right when he says they are not much advertised as yet, but the explanation is not far to seek. The disciples of the breed are few, and their limited output is quickly snapped up. Furthermore, the breed is still in the making, and most careful selection is still essential in the breeding pen. In a season or so things will be different.

(Continued at Foot of Next Column.)

I have, owing to lack of space, condensed what I would like to say, but I shall be very pleased to answer, to the best of my ability, any enquiries regarding Marsh Daisies.

Health by Ventilation.

By C. WINTHROPE SOMERVILLE.

FOREWORD.

The Editor has invited me to contribute a few remarks on the subject of Ventilation as applied to poultry work.

I warned him that I was neither a greybeard nor a mammoth producer in the industry, but rather one who was interested in research in a new field.

His reply intimated that since I had secured certain definite results of a beneficial nature, and that these results were now of an established order, these were hard facts, and that was all that mattered to any who wished to make use of them.

I think he is right. Principles and theories may be necessary for establishing a practice, but need to be converted into hard facts to make the foundation for the edifice.

I give you the one hard fact which formed the basis of my experiments and is the object of this article. **Oxygen is the vital principle of the living organism.**

One's medical knowledge may be of the slightest, but most of us know that the growth and maintenance of animal life is dependent on the perfect assimilation of food, and which, in turn, is dependent on an adequate supply of oxygen, and this from the beginning to the end of life.

In the very long ago a friend thought me a fit subject on which to plant the suggestion of the rearing of fancy pheasants.

The egg of the Blue Amherst at that time was valued at thirty shillings. He sold me two, together with fifteen eggs of another variety. I put them under a broody hen, who quite failed to understand that the smallness of the eggs was not commensurate with their value, and, standing in the nest, she looked at me with speculative eye, decided I was trying an unfair deal, and promptly stepped on the thirty-shilling eggs. This led me to appreciate the fact that an incubator would be a more economical method of hatching. I bought the incubator from the same friend.

With beginners' luck I got 70 pheasant chicks from 80 eggs. Then I made the foster-mother!

On the inside of the bottom (which then became the top) of a shallow box I nailed strips of flannel about an inch apart and reaching to within one and a half inches of the ground when the box was inverted, and, knocking out one end, placed it on the hearth of the kitchen range. When the birds were inside the temperature registered from 80 degrees to 90 degrees Fahr., and when they were outside it fell to 60 degrees Fahr. The first day I lost twenty chicks. The second day ten. Then I drilled holes in the top of the box, and the mortality fell to about three a day, till at the end of the week I had about thirty chicks left. These somehow defied that reservoir of stagnant carbonic acid and other foul gases produced by their exhalations and lived for three weeks, to die of injudicious feeding.

Your patience for another incident, which has a bearing on my subject.

A few years ago a lady invited me to recuperate my health by superintending a poultry farm she was about to establish in one of the Southern Counties. She was an expert! Her previous experience being confined to the renting of a country house for four months and taking over the control of the owner's pen of fifty birds.

She started her farm by sitting six hens, and purchasing thirty-six day-old chicks and a brooder for £5. It was there I first saw an up-to-date (?) brooder.

This brooder was eighteen inches square, and contained a "hurricane" lamp with a wire guard of nine inches diameter, so that the nearest points between brooder walls and guards were 4½ inches. The floor was solid, and the radiator of the pyramidal canopy type, came down over the top of the brooder, but was in no way sealed. The height was fifteen inches ,and five-eighth holes were drilled in the top about three inches below the canopy, the result of such a construction being that by no possible chance could you get anything in the way of an induced current of air from the bottom to the radiator outlet since the holes at the top effectually prevented any such action. The best that could be hoped for was diffusion.

Of the thirty-six chicks ten survived, and the twenty others naturally hatched were, at the age of six months, incarcerated in an old dog kennel, three feet square and three feet high. At night some of them had to roost outside on top of the kennel, while others crept underneath. I stayed there learning and obeying instructions, and keeping egg records to the end of November, and the maximum output from that house of thirty birds was seven eggs in one day in October, the average since they first started to lay in the middle of September being 1.15 eggs per bird per week.

These two incidents are given for the purpose of illustration, because they have insistently recurred to me during the last three years while I have been building up a modest installation on experimental lines, guided by the modern scientific thoughts, ideas and teachings as are contributed weekly in "Eggs." This journal showed me the modern **scientific** side of the industry and its possibilities, and I regard its existence as one of the greatest assets to the poultry world, for not only does it hammer, and keep on hammering, at the doors to the avenues of progress, but also ruthlessly tears at the hearts of the obsolete, the traditional, and the inefficient. Its efforts to hack at the root of the evils that still pertain deserves every encouragement. It is in the hope of assisting in some small way that I herewith give details of some experiments in the matter of ventilation and the beneficial results which have undoubtedly accrued.

THE BROODER.

Accepting, as we must, that oxygen is the vital principle of animal life, its adequate supply is equally necessary whether a chick is hatched naturally or artificially ; and yet from what one sees in brooder designs this fact seems, in many instances, to have been completely ignored.

Nature, in the form of a mother hen, provides a very complex study in the matter of a combination of warmth and ventilation for her chicks, and it appeals to one as being very obvious that the arrangement of her feathers when "brooding" her family must be automatic and instinctive in providing that condition. The carbonic acid and other poisonous gases produced by the exhalations of the chicks are dispelled in some marvellous manner which has yet to be discovered, and, if possible, imitated in the artificial brooder. We may not be able to imitate, but it should be possible to provide a scientific method by which the same end is to be obtained, and so reduce the countless losses from **impaired vitality due to lack of efficient ventilation.**

It matters not whether your artificial apparatus be a brooder of the small chamber type, limited to a hundred chick capacity, or that of a mammoth hover, the principle to be considered is the same, i.e., the removal of the foul gases and the adequate supply of pure air.

Necessity induced what little experimental work I have done in this direction, and has been confined entirely to a hundred-chick brooder.

Lacking experience, I built my original brooder on the lines of such apparatus as I saw used and advertised at that date, but differing in one very important feature by the doubling of the usual area of the hot chamber. The hot chamber was square, with correspondingly internal square corners, which proved a veritable death trap by reason of the chicks huddling into them. A hurricane lamp in the centre, guarded by small mesh wire netting, provided the heat. The lamp stood on a solid floor and was surrounded by chaff litter about an inch in depth. A small port fitted with a sliding door led into a cold chamber of rather larger dimensions. Holes were drilled in the sides of the hot chamber three inches above the floor level.

The bottom of the radiator rested on a seating

which effectually sealed it from the admission of outside air.

Without going into unnecessary detail I may say that while the temperature of the hot chamber could easily be maintained at 100 degrees Fahr. if required, so that there never was any question of a lack of the requisite amount of heat, my first lot of chicks (a 90 per cent. hatch) began to show loss of vitality after three days. After the fourth day several were suffering from leg weakness and subsequently died, and the losses continued till the chicks were old enough to **allow of the door admitting to the cold chamber being left open day and night.**

With the second loading of the brooder much the same thing happened, there being no visible signs of the cause of the mortality. Then I made the following observations :—

(1) At a temperature of 80-90 degrees Fahr. over the first two days the chicks did not huddle round the lamp, but the deaths nearly all ocurred in the **corners** of the chamber.

(2) The deaths always occurred during the night.

(3) Mortality continued up to six, seven and eight days.

(4) When the temperature of the hot chamber could be maintained at 60 degrees Fahr. with the cold chamber port open day and night and the chicks at liberty to go in and out at will no further mortality occurred. The feeding being precisely the same it was this latter observation that particularly impressed me, and led me to investigate the air supply as the possible cause of the lowered vitality. And I was further influenced by the fact that there was never a death in the incubator nursery although the chicks **remained** in it for forty-eight hours at a temperature of 90 degrees Fahr. before removal to the brooder.

In my case the incubator is of the hot-air type with the **downward** air supply, and ninety chicks provide a very crowded compartment. But it was very obvious that in the matter of carbonic acid gas the elimination must be complete. That the supply of oxygen was adequate, I considered to be amply established by the vigorous condition of the chicks from birth onwards.

It seems not unreasonable, then, to consider the possibility of brooder design on somewhat similar lines to that of the hot-air incubator; but when you come to work out the details it will be found that there are many objectional features, and the downward current of air is hardly practicable.

Convinced, in my own case, that mortality was due to bad ventilation, since at the best I was getting rid of the foul gases only by diffusion, the problem resolved itself with a study of the best method by which the foul gases were to be dispelled and fresh air supplied, and it appealed to me that the most obvious principle to secure this was that of **air current without draught.**

A fairly comprehensive knowledge and practice of the ventilation of rooms and buildings for scientific purposes by means of induced air current without mechanical aid led me to apply the method to poultry housing.

I find it difficult to believe that the top radiator principle for brooders and hovers is a "sine qua non" for successful rearing, and if it were not so then the foster-mother for the artificial rearing of chicks would be a very simple matter for ten or a thousand birds as far as efficient ventilation is concerned. But I could not wait to experiment in designs, and being unable to adapt a shaft or chimney to my brooder as the simplest method of obtaining the air current, I fell back on the next best system, which occurred to me, i.e., that of the injector principle.

This, I may explain, is a very mild form of the water-jet vacuum pump, and the effect is to produce a pull at the radiator outlet which in turn creates an induced current of air from the floor of the brooder.

I have endeavoured to do this by utilising the well-known law that the rapid ascension of a column of hot air creates a vacuum which must be compensated.

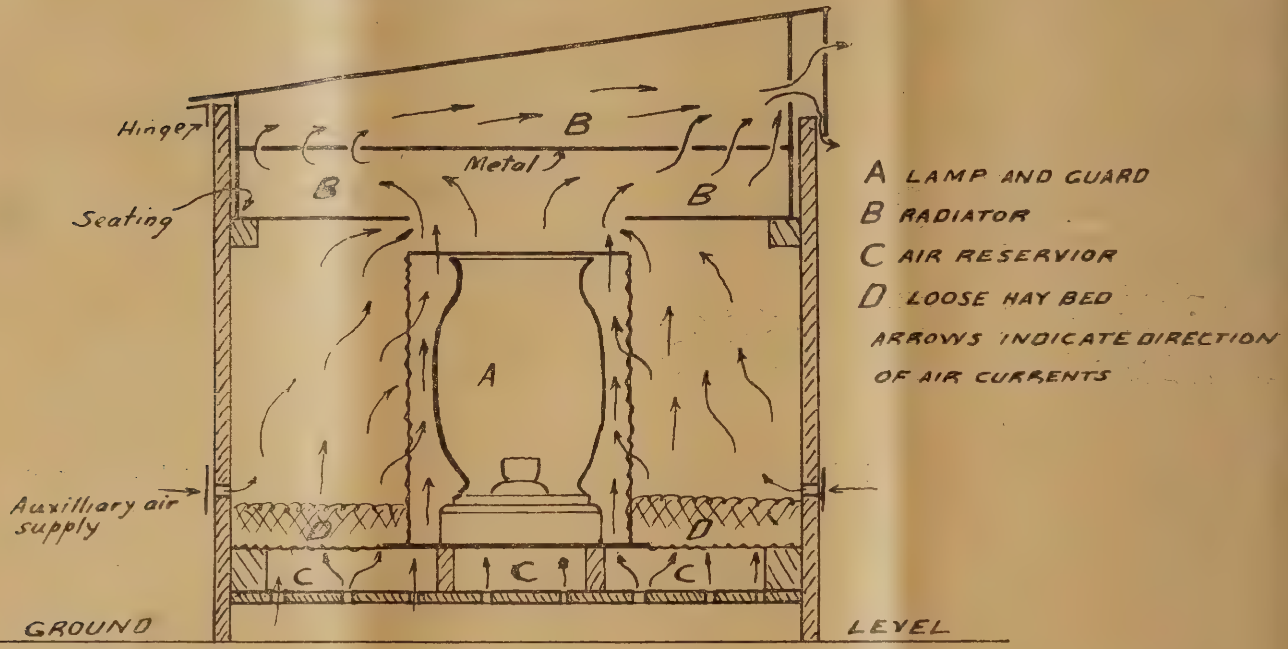
I fitted a new bottom to the brooder, about two inches above the ground, in which I drilled a lot of three-eighth inch holes. Two inches above this is fixed another floor of three-quarter inch mesh wire netting, on which rests the lamp and guard and a hay bed for the chicks. The lamp and guard reach to within an inch of the radiator bottom, which, as I have before stated, is **sealed on a seating.** The outlet aperture in radiator bottom is the same diameter as the lamp guard. The internal corners of the chamber were champered by nailing boards vertically across them.

The result I hoped to attain was that the heat from the lamp, together with that from the bodies of the chicks, in its ascension to the radiator and exit to the atmosphere, would induce a current of cold air from under the floor of wire netting, and (1) feed the lamp, (2) supply the chicks with pure air filtered (or diffused) and slightly warmed by passing through the hay bed. The accompanying diagram gives a rough idea of the hot chamber in side section :—

In the brooder, as shown, the lamp and guard base, being solid, the air must come through the hay bed to supply the lamp and compensate for the vacuum which possibly occurs somewhere about the level of the base of the lamp, and the column of heated air and gases being continuous a pull is created at the radiator outlet and thus an air current induced.

To suggest that the apparatus is scientifically sound would be absurd, because the laws governing the principle are too loosely applied; but I think it could be safely admitted that there is a tendency to pull away the foul gases and replace

Diagram No 1



SIDE SECTION DIAGRAM OF BROODER

NOT TO SCALE

with fresh air, some proof of this being provided if the lamp is found to burn properly.

The base of the lamp may, of course, be unsealed, in which case the column of heated air will be maintained, travelling from under the lamp to the radiator, and this will exert a pull over the chamber and so eliminate the foul gases and supply fresh air, if some small holes be provided in the walls of the chamber just above the hay bed. This is the actual method I have adopted in my own case, because, although the hay bed is renewed every third day, I do not care to run the risk of the chicks' droppings rendering the hay bed too solid a baffle.

Except for one or two cases of chicks obviously unfit for anything but killing when taken from the incubator nursery, my brooder mortality has ceased entirely since adopting this method of ventilation.

I have found hay to be better than straw or chaff for the bed; the air filtration is better and it is not so hard and rough for the chicks' feet.

Now for a word of venturesome criticism. Nothing I have even seen, heard of, or tried has convinced me that radiated top-heat is essential for the successful rearing of chicks, and when I found by actual experiment that the temperature of the under-side of my radiator was **less** than that at two inches above the chicks' heads I now regard the radiator as only an effective insulator against **loss** of heat.

This statement may call down on my head the thunder of the mighty and mammoth users of the hover principle of foster-mother, and I would have it so, for I would tilt heavily and hardily against any form of plant which tends to crowd chicks **voluntarily** into a chamber if it is unprovided for the efficient removal of the foul gases.

I have some grounds for suggesting that this does happen in many cases—from the letters received after the publication in " Eggs " of a letter of mine on leg weakness—describing appalling losses with such forms of apparatus.

The question may arise as to how such a system of ventilation as I have sketched can be applied. The answer is hardly within the scope of this article. The design of hovers are many and various, and each probably has its own special feature for the maintenance of the health of the chicks, but whatever this feature may be if it does not provide for the elimination of foul gases and the supply of fresh air by **air current without draught** it would not appeal to me as a **safe** apparatus. And to accomplish this should not be difficult.

(To be continued.)

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

SECRETARY'S REPORT — A WONDERFUL YEAR.

Ladies and Gentlemen,—I have pleasure in again reporting that we have had another most successful year's work. Again there has been a large increase in our membership. On August 31st, the last day of our financial year, the total number of **fully paid-up members** was 6,031. This increase is the more extraordinary, in view of the fact that the industry is suffering from a period of depression, which we confidently believe to be only of a temporary nature, and is but the reflex of the general trade depression throughout the country. It is the more gratifying because we have taken no special steps to secure new members, and it is due almost entirely to the recommendations of those who are well satisfied with the advantages they reap by membership of your Association.

Necessarily it has entailed a very large increase in the correspondence, but, thanks to the new offices, we are able to accommodate the necessary staff to deal with it. Some delay is unavoidable as on occasions like this, but we can say without fear of contradiction that 80 per cent. of the correspondence is answered by **return post.**

Although a larger number of members have taken advantage of the discount system than in any previous year, there has been a sharp decrease in the value of the goods purchased, the total value being £16,475, as compared with £20,966 last year. This decrease I believe to be due to the fact that there have not been so many people making a start, and consequently purchases have not been for such large amounts.

I feel compelled to place on record here the invaluable assistance we have received from the National Poultry Council. A very large number of questions have been submitted by our members through us, relating to Rating, Income Tax, Railway charges, troubles with local authorities, disputes between landlord and tenant, ravages by foxes, etc. I should like to mention, as one example, the case of Mr. Bell, who, having been very discourteously treated by the local hunt, sent details of his claim to me. It was at once forwarded to Mr. Brown, who promptly took action, with such satisfactory results that Mr. Bell's claim was paid in full. There have been other cases dealt with, with equally gratifying results, and letters from our members have testified to the courtesy and promptitude with which business is dispatched at the Headquarters of the N.P.C.

In the work of the Council your delegates have taken an active part, and you are represented on all committees, including the Poultry Advisory Committee, the National Poultry Institute Committee, and the National Poultry Diploma Board.

Several complaints have been received during the past year respecting fraudulent advertisers. We have now adopted a system in "Eggs" of asking for guarantees from would-be advertisers for eggs and poultry. This has been to some extent successful, and we have had complaints against only two of our advertisers; these advertisements appeared in small pre-paid columns, and they were stopped on receipt of the first complaint, but many of our readers suffered seriously. In one case we communicated with the local police; they informed us that the man had only part of a stable as his place of business, with a number chalked on the door. They had received numerous complaints from all parts of the country but were unable to take any action. In another very flagrant case the Council forwarded particulars to our solicitors, and they endeavoured to get the Public Prosecutor to take action. His reply was to the effect that the man did pay when hard pressed, and that he in the course of his business incurred bad debts himself. Again the local police had received complaints from all over the country, and he had been sued in the County Court, and an order made against him to pay ten shillings a month, which after making one payment he had ignored. At present the law is all on the side of these rogues, and we can only advise you to be careful to whom you send goods, particularly so in the case of individuals who are offering prices higher than those prevailing in the markets.

Visits have been paid to the different branches of the Association in the course of the year, and lectures and addresses given; all are working satisfactorily.

As showing you the world-wide influence of your Association, I may say that if we have not members

> "From Greenland's icy mountains
> To India's coral strand,"

we have them from Iceland to India. In nearly every European country, in all parts of S. Africa, in the United States, and Canada, in Egypt, Nigeria, Gambia, Australia, while we are now sending "Eggs" to nearly every civilised country in the world.

It has been a most prosperous and successful year. Now, Ladies and Gentlemen, may I, as your Secretary, utter a word of warning. Don't let our success turn our heads. We have done well, but we can do still better if we keep our mental balance and take a broad outlook. Success is not always conducive to further success, sometimes it has the reverse effect. We want a continuance of the loyal support we have had from your in the past, and no association or society has ever received better or more loyal support from its members. We want constructive criticism and helpful suggestions, and we have to realise that the work we have done is very small in comparison with what there is to do.

(The above report was submitted at the Annual General Meeting of the S.P.B.A., full particulars of which will appear in next week's issue.)

67, Pottery Street, Gallatown, Kirkcaldy.

Dear Sir,—I very much appreciate "Eggs" and the information derived therefrom. I, being a backyarder, commenced three years ago with your formula of Dry Mash. I have had a good output and results very good with less trouble, and healthier birds. My average this year is over 200 eggs per bird. I have 24 Pullets at present reared on your formula, never had anything else, in the pink of condition and on the point of laying. Wishing the S.P.B.A. much success.

Yours faithfully,
(Signed) JOHN M. BUIST.

No. 241. R.I.R. Hen.
520 in three years, fourth year till end of May 105.
Never broody. Average weight, 2½ozs.
Bred by Miss Maddison.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Dean, Jas. H., 1, Mountsteven Avenue, Gunthorpe Road, Paston, Peterborough.
Morrish, F. D., North Warwickshire P. Farm, Leamington.
Bird, F., Little Canfield, Dunmow, Essex.
Clark and Taylor, Messrs., Clareboro' P. Farm, Skellingthorpe, Nr. Lincoln.
Blakemore, L. D., 106, Marlborough Road, Coventry.
Turner, Alfred A., 25, Roman Road, Ilford, Essex.
Wilkinson, J. H., Brooklands P. Farm, Higher Heysham, Lancs.
Loyd, Mrs. Dorothy, Lockinge House, Wantage.
Kaye, Geo., 46, St. Helens Road, Almondbury, Huddersfield.
Butler, J., 11, Salisbury Street, Old Swan, Liverpool.
Swinburne, Mrs. E. M., Rift House, West Hartlepool.
Hooley, Miss K. M., 55, Shakespeare Street, Long Eaton, Nr. Nottingham.
Vardon, Capt. E. J., New Morgay Farm, Staplecross, Hawkhurst, Kent.
Elliott, Wm., Oakleigh, Cross-in-Hand, Sussex.
Wheller, H. J., Pitway, South Petherton, Som.
Peebles, M., Auchengate P. Farm, Barassie, Ayrshire.
Horner, Miss I. E., St. Martins, Sandown, I.O.W.
Hawkins, F. G., Kia Ora, Hillrise, Cold Norton, Essex.
Chippendale, P., Boot Stores, High Street, Yeadon, Nr. Leeds.
Main, M. C., Beech House, 144, Wilmslow Road, Cheadle, Cheshire.
Main, W. R., Beech House, 144, Wilmslow Road, Cheadle, Cheshire.
Nesbitt, Miss P. B. G., Boscean, St. Just, Cornwall.
Hawkes, H. P., 8, Russell Street, Luton, Beds.
Passmore, Alfred E., Withyshaw, Merstham, Surrey.
Mackay, M. J., Sackville P. Farm, Waterworks Road, Old Shoreham Road, Hove, Sussex.
Lamprey, F. W. S., Langford Lodge, Crumlin, Co. Antrim.
Pitchford, A. G., Stansfield View P. Farm, Todmorden.
Coffin, R. M., Evensglade P. Farm, Downs Road, Brighton,
James, Chas., Forest View P. Farm, West Moors, Nr. Wimborne, Dorset.
Wimberley, Capt. E., 2, Drayton Road, Norwich.
Godfrey, John, Smallfield, Crowborough, Sussex.
Whitehead, A., 6, Shackerley Road, Tyldesley, Nr. Manchester.
Fayremead Farm Products, Ltd., Fayremead, Ensbury, Nr. Bournemouth.
Taylor, A. B., Beech Tree Cottage, 353, Beech Lanes, Birmingham.
Allen, Mrs. A. E., Tytherington Cottage, Macclesfield, Cheshire.
Lomas, Albert, Duke St. Gardens, Eastwood, Todmorden, Yorks.
Webb, Mrs. T., Tarrant Grinville, Blandford, Dorset.
Antell, Mrs. E. S., Foords Farm, Horeham Road, Sussex.
McPhail, C., Wellpark, Caldercuilt Road, Maryhill, Glasgow.
Blake, Miss M. Bateman, Nettlesworth Cottage, Vines Cross, Horeham Road, Sussex.
Cunningham, R. T., Hatton of Cargill, Meikleour, By Perth.
Powers and Glover, Wood Dagger P. Farm, Hindley, Nr. Wigan.
Keith, Miss, E., Ravelstone Cottage, St. Cyrus, By Montrose.
Jones, W. O., Holbrook House, Lydbrook, Ross-on-Wye.
Bennett, Miss M., The Coneries Farm, Toton, Notts.
Hogg, W., The Retreat, Parkstone Road, Ropley, Winchester.
Dick, D., East Green, Anstruther.
Crawford, Miss M., Tyrella, Clough, Co. Down, N. Ireland.
Towner, J. F., "Revelstoke," Loose, Kent.
Williams, Rev. J. C., Totternhoe Vicarage, Dunstable, Beds.
Scudder, A. S., Haresland Cottage, Dawes Heath, Thundersley, Essex.
Landon, Mrs. E. H., Bullingham, Hereford.
Jones, Geo., 5, Formby Fields, Formby, Lancs.
Hall, Thos., Oakfield P. Farm, Benwell-on-Tyne.
Leaver, Alex. Wm. C., Tames Farm, West Hendred, Berks.
Ward, Frank, Villa Chamouni, Ashford, Middlesex.
Johnston, J. G., The Sandwick Poultry Farm, by Stromness, Orkney, N.B.
Roberts, Mrs. S., Runton Poultry Farm, Snape, Suffolk.
Hiley, Norman, 13, Laythorpe Terrace, East Morton, Bingley, Yorks.
Pearson, J. W., Corn Mill, Glusburn, Nr. Keighley.
Brown, John, Lodge Street, Glusburn, Keighley.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

CHAPTER I.

The hen, in the hands of the commercial poultry farmer who means business, must be looked on purely n the light of (1) a rapid growing and fattening table product, (2) an egg machine.

There is also the middle course, known as "the general purpose fowl," but we will not consider this for the moment.

There are possibilities in the rearing and fattening of table birds—great possibilities—but, in my opinion, the possibilities are much greater in the case of the "egg machine," because the production of eggs in proitable numbers is a highly skilled profession, demandng education, observation, and attention to detail, in a much greater degree than is required for turning out table fowl in a satisfactory manner. The profits of any ndertaking are proportional to the difficulties of making a success of it, and that is why I confidently predict hat the future before the CAPABLE egg-farmer is a comparatively bright one. I want that word "capable" underlined with the heaviest of lines, however, so that I may not be accused of attracting the unskilled but optimistic novice to his doom. Do not for one moment visualise commercial egg-farming as being like those glowing advertisement pictures of patent poultry foods, howing a very attractive young lady, with a very attractive smile, carrying home baskets laden to the brim (and usually well above the brim) with enormous, potlessly elean eggs.

Commercial egg-farming, unfortunately, has other spects. (And, anyhow, that young lady should not have put ALL her eggs in one basket).

With this preliminary caution, I propose giving some dea of the cost of starting a poultry farm.

Starting. Your unit is the hen, so we will base our ostings in "Hen Numbers." My costings are arrived at from actual experience, obtained in the transformation of my own general farm into a commercial egg arm of 2,500 layers.

Assuming you have decided to concentrate on egg production as your means of avoiding the workhouse, irst decide on what breed you intend to keep. If you re wise, you will start by rationing yourself strictly to one breed. There are several profitable breeds, but I ave always based my own operations on the rememrance of a line I read somewhere a good many years go, and which I quote herewith. "It is not by mere hance that nearly all the large commercial egg arms, both in England and America, keep ne breed, and one breed only—WHITE LEGHORNS." I think this advice is sound, though remember it applies chiefly to *large* egg farms. The man who intends to keep only a few dozen fowls for profit would, in my opinion, do better to go in for a more eneral purpose bird, such as the Wyandotte, Rhode sland, or Sussex. For, mind you, the Leghorn, with all its good qualities, is no more a respecter of boundaries (in the shape of wire netting) than are the majority of the politicians who are endeavouring to settle our good old Irish question. Also, the broodiness of the heavier breeds, which is such a curse to the "large number" man, is probably rather an advantage than otherwise to the small poultry-keeper. For large flocks, however, flightiness is preferable to broodiness, and it is always wise to choose the lesser of two evils.

I have now brought you to the stage when you may decide to start egg-farming in earnest, and as a matter of business you will want to know the amount of capital you will need to put in "per hen," and the amount of income that capital ought to bring home to you. To begin with, you will want a house for yourself, and at least three or four acres of land for your birds. These items I will not reckon in my costings, as they are so variable, so you must allow for this expense in addition to the necessary expenditure required for starting your egg-farm. The amount of land you will require depends entirely on the number of hens you eventually intend to keep. Unless for a highly-skilled poultryman, I would not advise estimating at more than four hundred birds to the acre. Now, then, what is your idea of an income which will satisfy your simple needs? Assume you answer, "Well, I CAN live on £500 a year—though I want a lot more." To make this £500 a year out of your egg machines, you should, in addition to the essential knowledge and capability, be prepared to keep a permanent stock of one thousand laying hens, and to fully equip and stock your poultry farm for the production and maintenance of this number, I reckon you must invest about £1,500, i.e., approximately 30s. per hen. You *might* do it at £1 per hen, but my own experience makes me think that, when you reckon up every single item of capital expenditure required for a self-supporting egg farm (always excepting the actual land and your own dwelling-house, remember) it is safer to reckon on 30s. per hen. The buying price of suitable land around here is from £50 to £75 per acre, and as your thousand hens could be kept on about three acres, the land would cost you some £200, i.e., about 4s. per hen. I think, on consideration, that we might lump this 4s. per hen into the safe estimate of 30s. given above, and say that the capital cost of equipping your egg farm could be taken at 30s. per hen, INCLUDING an allowance of, say, £60 per acre against cost of land.

You will thus see that in order to earn £500 a year, you must run your farm as a thousand "hen-unit" concern, which will involve a capital expenditure of £1,500. That is, you can make about 33 1-3rd per cent. on your capital if you really know your business. which, after all, is quite an attractive proposition. The running costs of such a farm I will go into later; meantime, you can think over what I have said so far, and decide as to whether the egg-machine is good enough for you as a money-maker, or whether you might not do better as a stockbroker, soldier, sailor, apothecary, or thief. To be a really skilled thief, for instance, must be a most interesting and exciting way of making an honest living, but I fancy it is a very difficult profession and takes years of training, besides a natural aptitude for the game.

* * * * * *

These stars represent a few moments devoted by you to quiet reflection, after which you come up to me again and say you have thought it all over, and made up your mind—you really DO intend to hold to your original intention and join the noble army of Egg Producers. Brave heart, I salute thee. Your troubles lie all in front of you, but I will do my best to assist you to conquer these troubles which lie behind me—though many others still lurk in front of us both.

Of writing many books there is no end, and much reading is a weariness of the flesh. Solomon said this (or words to that effect), and though we have no record of Solomon as a poultry-keeper, we must all admit that he earned a reputation for wisdom, which few, if any, of us are likely to equal. And certainly a terrible lot of books have been written about poultry, and there is a terrible lot of chaff amongst the litter. I have myself (imitating the industrious hen) scratched very hard amongst the litter of these books, and I have, with infinite labour, unearthed a few—a very few—sound grains, which I have done my best to digest. To save you, my reader, from this laborious scratching, I will forthwith indicate to you those grains which have proved of most nutriment.

First and foremost, I place a small weekly paper, called "EGGS." If at times I feel that I shall never be a really SCIENTIFIC poultry breeder, after reading some particularly abstruse article in this paper, still I have the utmost respect for those who can and do write such articles, and I hasten to turn the page and solace myself by reading the letter of some dear novice, asking Mr. Newman whether he (or she) should bury the grain or the wet mash in the litter, or whether it would be all right to let mongrel cocks run with their pure-bred pullets during the day, so long as they were not allowed to sleep together at night. It requires a model Editor, like Mr. Newman, to answer such queries, and when I say that he actually does answer them, and answer them courteously, I am only affirming what every reader of "Eggs" knows—that Mr. Newman is, as far as is possible in this most imperfect world, the model editor for a poultry journal.

My second grain found in the chaff is a modest little book costing a shilling or two, "Commercial Egg Farming," by S. G. Hanson. Mr. Hanson's name is famous amongst modern poultry farmers as that of the man, who, in spite of all discouragements, first showed the rest of us that keeping large flocks of Leghorns for egg production, could be made into a highly profitable commercial undertaking. I take off my hat to Mr. Hanson. His book is short, concise, and essentially sound. There is no sentiment about it; it is a business book by an excellent business man. I always enjoy reading Mr. Hanson's occasional letters to "Eggs," especially when they are in reply to some kind friend who has given him a few hints as to how to improve his hen-income by some slight alteration, such as, say, introducing "trap-nesting." Mr. Hanson's replies are a model of curtness and businesslike brevity. I, for one, will not advise him how to run his business. I often wonder, however, what sort of replies Mr. Hanson would give to the novices who ask Mr. Newman questions!

The third grain which I have unearthed is a rather more ambitious book—"Commercial Poultry Farming," by T. W. Toovey. This costs about 7s. 6d., and is well worth the price, as an example of how good staff work can be applied to methods which too many of us are inclined to condemn off-hand as prehistoric and uneconomic in these modern poultry farming days. Mr. Toovey has gone back to Nature, as far as the hen is concerned, to a large extent. He has tried and forsaken incubators, dry mash, and other modern ideas. He has reverted to hen hatching, hot wet mashes, cross-breeding, and other things which must raise the hair on the head of the ultra-scientific novice. And Mr. Toovey has made a success of poultry-farming—a success probably greater than nine out of ten "modern men" have made. Mr. Toovey never pretends in his book that his are the only methods which will lead to success—he simply states that HE has found them most successful.

I consider Mr. Toovey's book to be a distinctly succulent grain, and I hope some day to have the pleasure of meeting the author.

Fourthly, I have found Mr. Burn Murdoch's Poultry Course most helpful, especially his carefully detailed method on rearing the chick from birth to maturity. I am however, somewhat chary on criticising Mr. B.-M.'s book, as the author wields the pen of a *very* ready writer, and occasionally dips that pen into a bottle of gall when replying to a would-be scientific novice.

Fifthly, I should like to say that an excellent leaflet by Mr. Newman himself, "Handling and Observation," accompanied by a series of perfectly coloured plates, has proved one of the most profitable grains I have yet extracted from the litter. The plates, showing with marvellous accuracy the typical points of the high-producing hen (which keeps YOU) and the slacker hen (which you KEEP—far too often) hang round my office and delight the eyes of the charming ladies who occasionally visit me therein. They have been hanging there for nearly a year, and I have found that they have automatically trained my eye to instinctively pick out their prototypes in the flesh. "Handling and Observation" with these plates is one of the most useful investments I have ever made.

Sixthly (and lastly) I must in justice say that there is no poultry book published to which I personally owe so big a debt of gratitude as to "The Call of the Hen," by the late Walter Hogan. Hogan, no doubt, claimed too much for his system, but that is a common fault, and Hogan, after all, WAS an enthusiast, and was the man who first brought the "Handling" system into popular favour.

Directly I began to read this book I was impressed by the transparent honesty and conviction of the writer. If he laid too much stress on certain points, and too little on others, the fundamental basis of his system is at least sound, and it is a system to which he devoted the greater part of a long life in elaborating and improving. The Preface to his book is worth quoting, as it shows that Walter Hogan did not mean to claim perfection for his work. It runs "To those poultrymen, who, like the author, do not know it all."

In my humble opinion, the whole poultry world owes a deep debt of gratitude to the late Walter Hogan.

These are the chief grains of wisdom I have scratched up so far, but there must be many more hidden under the litter.

(To be continued.)

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 17th OCTOBER, 1924.

GRAIN AND FEEDING STUFFS.—Fair supplies of home-grown wheat are available, and, with a good demand and condition on the whole more satisfactory, prices show an advance. Middling samples now average about 13s. 1d. per cwt., 1s. more than a month ago, while samples fit for seed make from 14s. to 15s. per cwt. British oats are also dearer, and these again are in strong request when suitable for seed, but barley is much more plentiful, and, although finest malting samples remain scarce and command fully recent prices, commoner malting grades are a somewhat dragging trade and are inclined to fall.

Imported cereals, generally, have been rather irregular, and declined early in the week, but there has since been a recovery and the market closes firm, although at a slightly lower level than a week ago.

A further general advance is recorded for milling offals and meals and also for oil cakes. Bran and middlings have risen 6s. per ton on the week and now average about £9 and £11 respectively per ton, while Egyptian seed cotton cake, at an average of £9 15s. per ton, shows a rise of 5s. An exception to the general advance is barley meal, which is a shade cheaper.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s.; Hull, £8 17s.; Liverpool, £9 5s.; London, £9. Broad Bran: Hull, £10 7s.; London, £9 17s. Middlings—Fine (Imported): London, £11 7s.; Coarse (British): Bristol, £11 2s.; Hull, £11 5s.; Liverpool, £11 5s.; London, £10 2s. Pollards (Imported): Bristol, £9 7s.; Hull, £8 17s.; Liverpool, £9 5s.; London, £9 10s. Rice Bran: Bristol, £9 7s.; Liverpool, £9. MEAL.—Barley Meal: Bristol, £14 5s.; Hull, £14; London, £14 5s. Maize Meal: Bristol, £12 10s.; Hull, £12 5s.; Liverpool, £12 10s.; London, £12 5s. Maize Germ Meal: Bristol, £12 5s.; Hull, £12 5s.; London, £12. Maize Gluten Feed: Bristol, £12 5s; London, £11 10s.

EGGS AND DEAD POULTRY.

With supplies on the short side, eggs continue to advance, the most pronounced rise being for English and Irish. Moderate offerings of poultry are available and sell rather slowly at unchanged prices.

Week-end Prices—Eggs (per 120): British: 26s. 6d., 24s.; Irish: 23s., 21s. 6d.; Danish: 24s. 6d., 22s. 6d.; Dutch: 26s. 6d., 23s.; Russian: 16s., 13s.; Belgian: 22s., 21s.; Italian: 21s., 19s.; Lithuanian: 17s. 6d., 15s.; Roumanian: 14s. 9d., 13s. 3d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d., 1s. 5d.; Irish: 1s. 1d., 11d.; Others: 1s. 4d., 1s. 1d. Ducks: 1s. 2d., 10d. Geese: 1s. 3d., 10d. Turkeys: 1s. 9d.

EGGS.

Per Doz.—Ashford: First, 3s 1d; Second, 2s 11d. Birmingham: First, 2s 4¾d; Second, 2s 2½d. Bridgwater: First, 3s 0d; Second, 2s 11d. Carlisle: First, 3s 2d. Chelmsford: First, 3s 1¼d; Second, 2s 9½d. Denbigh First, 2s 7d, Second, 2s 6d. Derby: First, 2s 10d. Dorchester: First, 2s 10d. Exeter: First, 2s 8d. Hereford: First, 2s 10d. Ipswich: First, 3s 0d; Second, 2s 9d. King's Lynn: First, 2s 9d; Second, 2s 6d. Lincoln: First, 2s 6d. Llandilo: First, 2s 9d; Second, 2s 6d. Newport (Mon.): First, 2s 10d; Second, 2s 8d. Norwich: First, 2s 9d. Oswestry: First, 3s 3d; Second, 3s 1d. Penzance: First, 2s 6d; Second, 2s 5d. St. Ives: First, 2s 11½d; Second, 2s 10¼d. Salisbury: First, 3s 1d; Second, 2s 7d. Shrewsbury: First, 3s 6d; Second, 3s 3d. Skipton: First, 2s 6d. Truro: First, 2s 6d. York: First, 3s 0d; Second, 2s 11d.

FOWLS.

Per lb.—Birmingham: First, 1s 2d; Second, 9d. Derby: First, *5s 3d; Second, *3s 6d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *4s 9d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 6d; Second, *4s 6d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *5s 6d; Second, *4s 0d.

* Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 22nd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

No. 182. R.I.R. Hen.
274 in pullet year; 165 to end of August. Never broody.
Bred by Miss Maddison.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office
FIRST POST FRIDAYS
for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS AND CHICKS.
FOR SALE.

Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faveroles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

READY NOW.

Light Sussex, Day-Old Chicks; price, £1 1s. per dozen.—Moore, St. Edmund's Lane, Bures, Suffolk.

PULLETS.
FOR SALE.

Black Leghorns. Needing the room have about 30 Black Leghorn Hens, 10s. 6d. each; and some 1924 Cockerels, 10s. 6d. each, for Sale.—Innes, Brean Cottage, West Monkton, Taunton.

Home-mixed mashes now cost more

POULTRY mash ingredients are all going up in price. Best middlings cost almost 2d. per lb.; meat and fish meals 2½d. per lb.—sold, too, without a guarantee of analysis or of quality!

Ful-O-Pep Laying Mash — finely ground, mixed ready for use — only costs just over 2½d. per lb., even in the smallest quantities.

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Price 15s. and £1 1s. each.—Innes, Brea
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Pullets and Cockerels of this new and e
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White Leghorns (Snowden) Pulle
reared at 800 feet. February, 15s.; Mar
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Speciality.

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BARNEVELDERS.
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1 G-

Wednesday, October 29th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months Post Free 12/8
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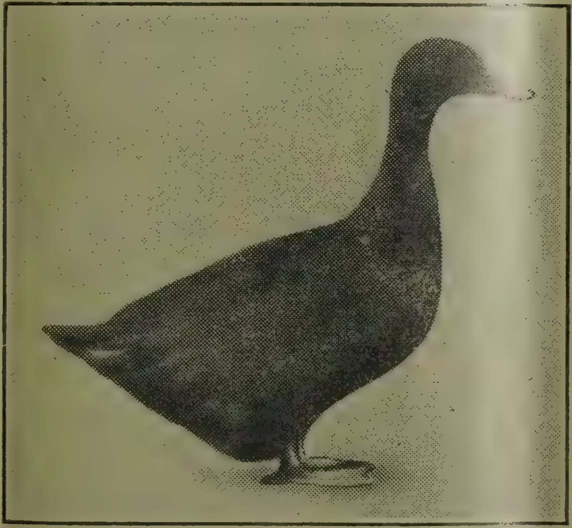
KHAKI-CAMPBELL DUCK.

Official Record at National Laying Test : 32[illegible] eggs in a year.

Dam of four of the Ducks in the pen which has been leading all Sections of [illegible] the Duck Test at Bentley for the last four months.



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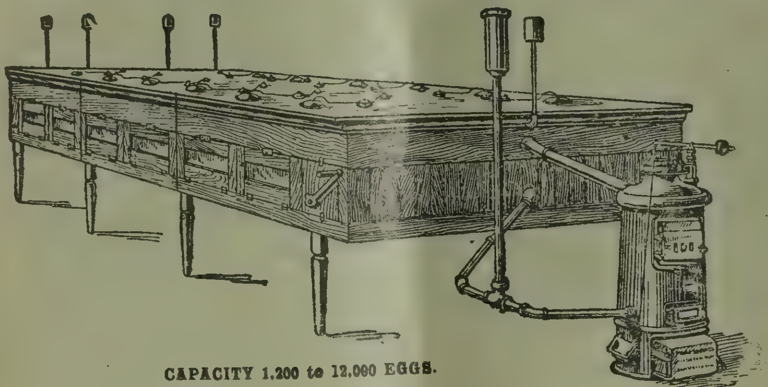

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If you are hatching in large quantities you cannot do better than instal one of these magnificent Incubators.

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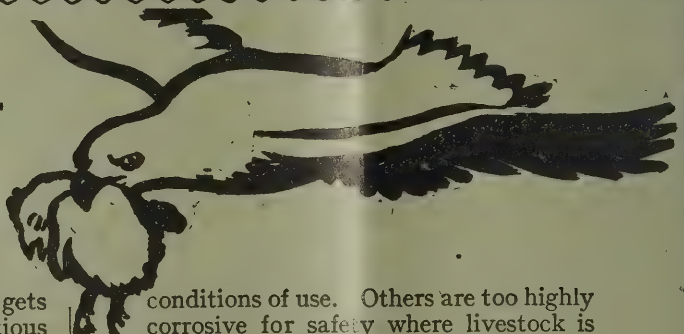
GERMS—

more deadly than Hawks



For every chick that a hawk gets nowadays, thousands fall to infectious diseases. There are many poultry keepers who cannot understand why this is so. "I use a disinfectant" they say. But does your disinfectant really kill germs? Many such fluids, though technically antiseptic, do not destroy disease germs under ordinary conditions of use. Others are too highly corrosive for safety where livestock is kept. IZAL is 18 times more powerful a germicide than carbolic acid, yet it is safe in use. Exposure to the air does not affect its power. Lime and pollution do not neutralise or break up its composition. It is the surest as well as the safest disinfectant.

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 29th, 1924.

Modern Poultry Feeding.

By **TOM NEWMAN.**

THE PULLET FEEDING EXPERIMENTS AT WELLINGHAM POULTRY FARM, LEWES.

These experiments, which began on October 1st last year, were completed on September 30th. The records are interesting, and in some respects remarkable. Of the pullets which took part in the test no fewer than 18 laid 200 or more eggs. As they were not selected birds, but were taken from the flock, it must be regarded as an excellent performance. Six birds died during the test, and it is worthy of note that the greatest mortality occurred in "D" pen, on what we regarded as the safest mash—certainly the one which would be least likely to cause digestive disorders. In pen "C," where we thought some trouble might occur, only one bird died, and this from a broken egg in the oviduct. The remainder of the pullets in this pen looked in the most perfect health when we saw them on October 11th, and several of them were still laying. In Pen "B" one bird was cropbound, and, although operated on, never recovered. This pen was badly let down by No. 206, which laid only 43 eggs, and No. 80 "went light" and had to be killed. In part the comparatively poor records in Pen "A" were due to so many of the pullets having a neck moult. All the pens suffered more or less from this, "C" being the least affected with only one bird.

I have repeatedly warned readers that "C" mash was used for purely experimental purposes, that it is by no means a model ration, and of necessity some modifications must be made. In spite of that warning a very large number of readers have given it a trial, and many who have written to me tell me that it has proved a complete success, but there have been three or four who have had a different experience. There has been a decided slump in the egg yield, and they have had to abandon it. The health of the birds does not seem to have been affected, whether this was due to too sudden a change in the mash, or a sample was used which was inferior, I cannot say; these things occurred, and we cannot ignore them, in spite of the good records made by Pen "C" and their wonderful health at the end of the test. I would not recommend anyone to try this formula on a large flock. The following is a much better formula, and as the animal protein can be considerably reduced would give a much cheaper mash:—

2 Bran.
2 Alfalfa.
8 Middlings.
2 S.G.O.
2 Maize meal.
1 Soya bean meal.
½ Fish meal or meat and bone meal.

The full records are given below, including the total cost of feed, which Miss Malcolm and Mrs. Pember have kindly prepared. Some acknowledgment must be made of the valuable work which these ladies have done, the very careful manner in which the records have been kept, and for their kindness in placing their plant and stock once again at the service of the S.P.B.A. An experiment of this nature involves a tremendous amount of time and trouble, and we should be very grateful to them, for, although we would not be so absurd as to claim that the experiment was by any means conclusive, it will be admitted that much valuable knowledge has been gained.

The following were the formulas used in each pen:—

Pen A—2 lbs. bran, 4 middlings, 1 S.G.O., 1 maize meal, 1 fish meal.

Pen B—2 lbs. bran, 4 middlings, 1 S.G.O., 1½ soya bean meal, ½ fish meal.

Pen C—2 lbs. bran, 4 middlings, 1 S.G.O., 1¾ soya bean meal, ¼ fish meal.

Pen D (Control Pen)—1½ lbs. dried milk, ½ dried yeast, 5 middlings, 2 bran.

WELLINGHAM PULLET EXPERIMENTS.

"A" (Blue Ring).

Ring No.	Eggs. September.	Eggs. To Date.
121	16	200
228	6	118
235	17	188
250	14	219
337	15	209
388	—	83
401	11	227
405	—	120
—	—	137
—	—	128
Tot.	79	1629

Amount Consumed.

Mash: 38lbs.

Grain: 22lbs. 8ozs.

Total: 60lbs. 8ozs.

Total Cost: 6s. 3.7081d..

"B" (Red Ring).

Ring No.	Eggs. September.	Eggs. To Date.
206	—	43
210	6	165
217	15	221
271	23	257
292	22	228
303	15	253
508	20	207
524	17	240
80	Light killed	128
—	—	43
Tot.	118	1785

Amount Consumed.

Mash: 40lbs.

Grain: 22lbs. 8ozs.

Total: 62lbs. 8ozs.

Total Cost: 6s. 4.6784d.

"C" (Green Ring).

Ring No.	Eggs. September.	Eggs. To Date.
213	5	176
229	16	228
256	11	208
257	16	240
265	—	178
273	1	220
411	21	242
413	19	215
525	15	213
—	—	74
Tot.	104	1994

Amount Consumed.

Mash: 45lbs.

Grain: 25lbs. 4ozs.

Total: 70lbs. 4ozs.

Total Cost: 7s. 0.9665d.

"D" (White Ring).

Ring No.	Eggs. September.	Eggs. To Date.
138	13	168
234	15	195
261	14	258
333	15	225
392	—	165
394	2	150
—	—	143
—	—	103
—	—	59
—	—	153
Tot.	59	1619

Amount Consumed.

Mash: 19lbs.

Grain: 16lbs. 14ozs.

Total: 35lbs. 14ozs.

Total Cost: 4s. 2.9329d.

WELLINGHAM EXPERIMENTS.

From October, 1923, till 30th September, 1924.

Pen.	Food Consumed. Mash. cwts.	lbs.	Grain. cwts.	lbs.	ozs.	Total. cwts.	lbs.	ozs.	Cost of Food. £	s.	d.	Eggs.
"A"	4	39	3	17	2	7	56	2	4	8	9	1629
"B"	4	68	3	17	3	7	85	3	4	10	1	1785
"C"	4	109	3	19	15	8	16	15	4	13	3	1994
"D"	4	4	2	106	0	6	110	0	4	14	8	1619

Health by Ventilation.

By C. WINTHROPE SOMERVILLE.

(Continued.)

THE ADULT HOUSE.

The provision of a properly ventilated house for the adult birds is of equally vital importance.

When you consider the stationary condition of the birds during the night, huddled together as they are, and the foul gases exhaled by them and emanating from their droppings, and picture yourself living under similar conditions, the matter assumes a greater importance than is generally attached to it.

The same law of health is involved—i.e., the perfect assimilation of food, normal functioning of the various organs for the production of eggs, and general upkeep of vitality by the adequate supply of oxygen and elimination of the foul gases.

To a large extent the open is still the natural habitat of the bird, and if you are going to entirely rule out that condition and confine it to others entirely unnatural and detrimental to health, you cannot expect success.

Thus the housing of poultry **cannot** be a haphazard matter, but is really a difficult problem.

Here, then, the same principle may be employed, that of **air current without draught.**

I venture to suggest that the old method of calculating the size of house by cubical capacity need only be secondary to floor area; and, providing you can effectually get rid of the foul gases, a considerable saving in structural costs may thereby be effected.

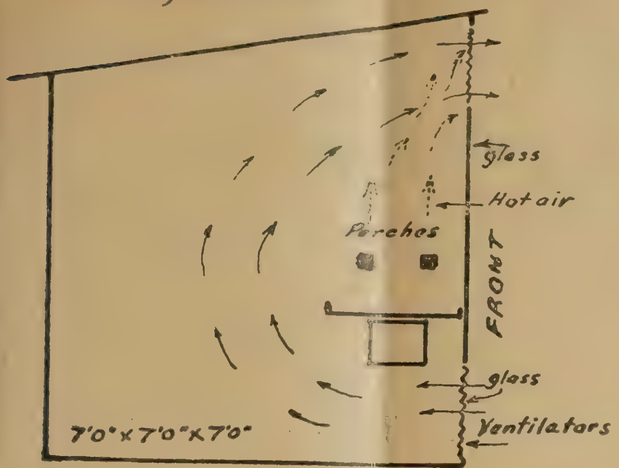
But when one sees a house with a lean-to roof sixteen feet from front to back, at a slope of about one in six, and the perches situated at the back where the height is only four or five feet, one wonders what poverty of thought induced such a design. Economy? Certainly! Economy of design at a sacrifice of what—?

The birds are perched in a dead-end pocket with a droppings board a foot or so below them. Short of an exhaust fan, what is going to remove the foul gases? This form of house appeals to me as one of the very worst from the point of view of ventilation.

Unless you use artificial means it is practically a "sine qua non" for ventilation without draught that you get a column of heated air and foul gases to ascend rapidly and escape rapidly, and so induce an inflow of pure air at **floor-level.**

The first four houses I built were of the lean-to type—for economy. But in order to provide the above conditions the perches and droppings boards were fixed against the **front**, or high end of the house with the nest boxes underneath. There was a twelve inch aperture the whole width of the front

Diagram Nº 2



SIDE SECTION DIAGRAM

NOT TO SCALE

from the roof down and covered with hessian, which let in air but kept out rain. For five feet below this was solid woodwork and glass, then another twelve inch aperture to floor level, guarded with wire netting and glass screen ventilators.

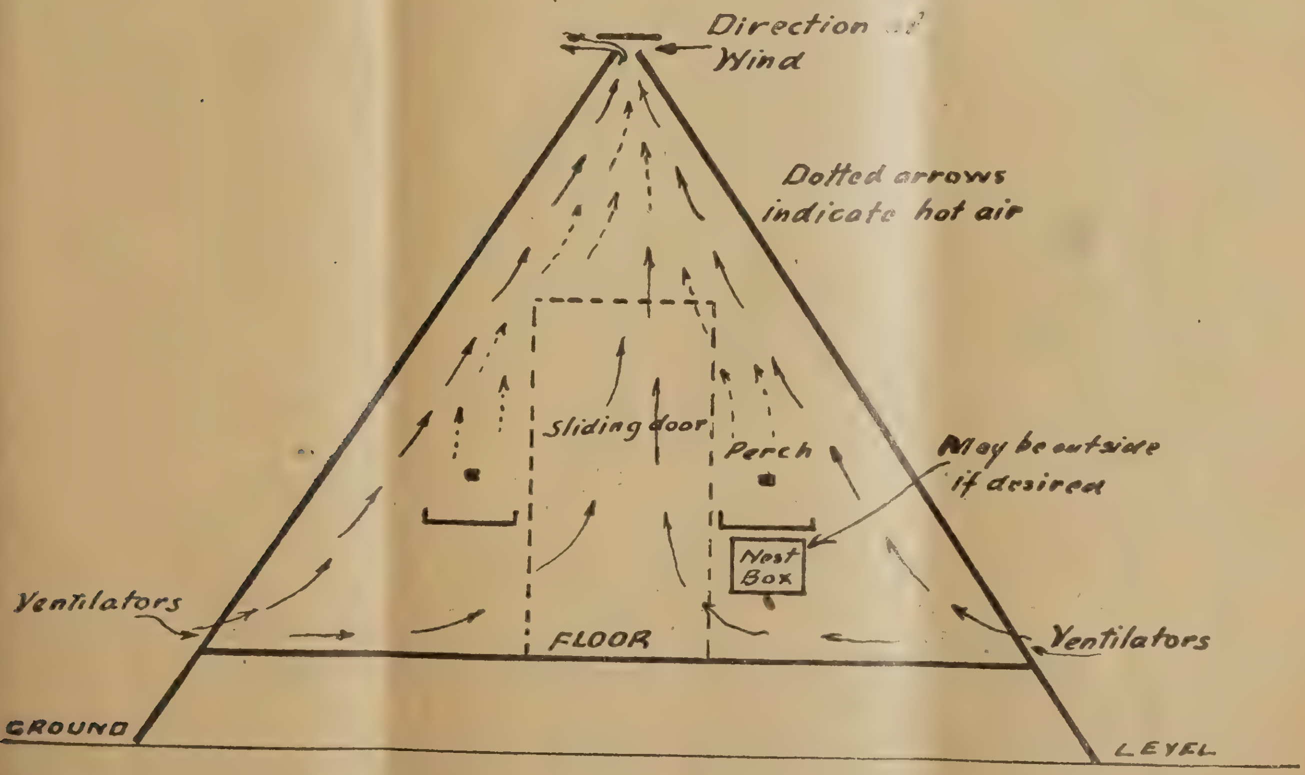
The idea was to secure constant circulation, or movement of air, at all times without draught. I hoped to get a circuit of air as indicated by the arrows. Needless to say, the system is a failure as regards an induced current, but it is successful in that there is an absence of stuffiness even in very hot weather, and however violent the wind the birds are absolutely protected from draught; also the foul gases are effectually carried away or dispelled. It was with these houses I discovered the great objection to parallel perches, a matter I propose to deal with later.

I then designed and built the house which I thought was going to provide—as far as I knew—all the desirable features required for modern poultry work on the semi-intensive scale.

Some of the essential properties were to be:—(1) Economy in construction; (2) perfect ventilation; (3) adequate floor space; (4) simplicity in working, cleaning, etc.; (5) adaptability to extension and extensible units; (6) dust bath and rain shelter facilities in cases of field houses.

That I have secured every one of these in my own particular method of poultry work I have no hesitation in saying, but at the same time there is no idea in my mind of suggesting that it is the ideal house, my knowledge of large-scale poultry installations being too limited for any such claim.

Diagram Nº 3.



END VIEW DIAGRAM

NOT TO SCALE

By a happy accident the house was seen and inspected by one of your poultry authorities just after its occupation, and being good enough to comment favourably on its scientific conditions he called it the "Apex" house, and by that name it is now known to all who have seen and been interested in it.

It is impossible in the limited space at my disposal to give details of construction, but the diagram given on previous page should be sufficient for anyone to appreciate its possible usefulness.

Considering the particular features as enumerated above, the economy and simplicity of construction must be obvious to those used to building their own houses. The lightness of framing required is a feature.

Ventilation.—Here we use the injector principle in a modified form to secure an induced air current The air inlet, in the form of ports along the side at the floor level, or just sufficiently above the floor level to prevent choking by scattered litter. The products of combustion, or exhalations, waste and foul gases and body heat all create a force in the form of a column of hot air rising to the peak of the house and thereby exerting a pull by the tendency to create a vacuum somewhere at a lower level. At the extreme peak outside the house a wide board is fixed to act as a weatherproof louvre, and provide the aperture for the escape of the hot air, and some consideration has to be given to the size of this aperture since it has a distinct influence on the efficiency of the induced current. Any breeze or wind which happens to be about blows through this louvre in a **horizontal direction.** Thus you have three forces acting in conjunction to create the induced current of pure air from floor level: (a) A rising column of hot air; (b) the slight compression of the hot air owing to the continuous constriction of the sides of the house to its apex and its sudden expansion at the exit; (c) the horizontal draught, or current, from one side of the louvre to the other from the outside.

Theoretically you should have the building airtight except at the inlet ports, but in practice this is hardly possible. It is, however, necessary that there should not be open windows above the perch level, otherwise you destroy the system. In my own case the windows are fixtures.

As in the case of the brooder, I repeat that it would be absurd to suggest that in practice the "Injector" effect is very scientifically efficient; but from a year's working I can unhesitatingly claim that in the coldest weather the house is warm, thereby showing the tendency to automatic regulation of induced current; in the hottest weather there is a complete freedom from any suggestion of "suffocating warmth." In the highest wind there is absolutely no draught in any part of the house, and actual tests made with smoke indicate that the tendency to induced current **is there.**

Some criticism has been levelled at the house to the effect that any height beyond three feet above the birds is unnecessary; that the top could be flattened to make a narrow roof, thereby saving material. This, of course, is wrong, as you would be cutting out one of the most important features in the induction principle; and what you saved in surface material you would spend in frame work.

The floor area is based on semi-intensive working—that is to say, that the house is really for laying and night perching, the birds being penned on grass land. But I find that the perch room really governs the number of birds that could be housed, and the floor area to be well in excess.

As to simplicity of working some features may be worth mentioning. The perches being on either side allows of a four foot central gangway in a house twelve feet wide at floor level. There is a sliding door at each end. The absence of any floor obstruction allows the used litter to be swept out at either or both ends. The dropping boards are in four half-lengths, and a hinged flap in the ends of the house opposite each board allows it to be pulled out and the droppings scraped into a barrow or other receptacle; or in this connection the house lends itself admirably to the use of a continuous belt or conveyor droppings board, which may conveniently be made of galvanised sheet iron, a matter to be briefly mentioned later.

Extension is a simple matter. The ends containing the sliding doors are complete in themselves and bolted on; thus, since there is no roof, any number of "bays" or "sections" may be added temporarily or permanently, the width of the sections being of a size for convenient handling.

Outside shelter and dust baths are provided by keeping the floor well above the ground.

One important fact I would mention is that the **smallness** of a house is limited by the size of the doors, because, according to the angle of the sides, the higher and wider the door the greater the floor width. This, of course, applies only to houses large enough for personal entry. Very small houses of this design—sufficient to accommodate ten birds—can be successfully used for breeding purposes, but in such cases one complete side is hinged at the bottom, and outside nest-boxes fixed at one end.

(To be continued.)

BRIGHTON STOCK TEST REPORT.

SEPTEMBER, 1924.

HEAVY BREEDS SECTION.

Figures are hatching and rearing score, and total eggs to score respectively:—

R. Mummery (8 W.W.), 71, 1525; W. F. Morris (11 W.W.), 65, 1808; Countess Buxton (4 W.W.), 38, 866; Mrs. Crooke (4 W.W.), 32, 729; W. Crabtree (9 W.W.), 61, 1712; Brighton (7 W.W.), 57, 1125; Craig Gallon (7 R.I.R.), 64, 1047; McLeod (9 R.I.R.), 67, 1534; Mrs. Russell (5 R.I.R.), 59, 877; R. Saunders (7 R.I.R.), 55, 1246; S. Simmins (9 R.I.R.), 72, 1224; Capt. Woodford (12 R.I.R.), 91, 1815; Capt. Tomlinson (8 R.I.R.), 64, 1350; Miss Clark (9 R.I.R.), 66, 1293.

LIGHT BREEDS SECTION.

Bradbury (14 W.L.), 83, 2518; Craig Gallon (14 W.L.), 93, 2151; E. Coles (9 W.L.), 83, 1858; Chisbury Poultry Farm (16 W.L.), 98, 1422; Stanley Street-Porter (18 W.L.), 104, 3106; B. Glendenning (15 W.L.), 94, 2300, Mrs. H. Kent (16 W.L.), 116, 1664; Sweet Escott (17 W.L.), 115, 2544; David Brown (16 W.L.), 115, 2566; Amsden Bros. (15 W.L.), 102, 2616; D. Gunston (16 W.L.), 91, 2716; Miss Moddison (16 W.L.), 121, 2075; Miss Ransford (13 W.L.), 99, 2474; Court Farm (14 W.L.), 107, 1391; Edward Watkins (12 W.L.), 83, 1930; Brown's Poultry Farm (7 Anconas), 82, 1301; Mrs. A. Stuart (10 B.L.), 68, 1644.

JOHN H. DOWDEN.

Planning a Poultry Farm

By JOHN MEEKINGS.

No problem connected with modern poultry husbandry has a more vital bearing upon success or failure than that of poultry housing. Latterly both the theory and practice of poultry housing have undergone a series of changes. In the past any old shelter has been considered perfectly satisfactory for the hens. There has been no attempt at proper construction. Birds have been housed under damp and filthy conditions, and have proved anything but a success, and yet the hen proved her worth. By seeing to it that our hens are properly housed, we can advance ourselves along the road to success in the poultry business. There *is* an ideal in the planning of a poultry farm, but few can hope to attain to it. Such a task, if it is to attain the ideal, requires both experience and money. The former, if in plenty, will do much, even with a small supply of the latter, but the lucre in the hands of the inexperienced is usually fruitful in types of poultry plant so common in this country and so distressing on the landscape.

The time at my disposal will not allow me to treat the subject exhaustively, so let us neglect the more elaborate and costly plant, necessary for big commercial egg farming, and assume that our acreage is limited, and the necessity for quick and steady returns is vital to our continuance in a work that can be both pleasant and remunerative.

First of all, the land—its aspect and position—its composition and quality. Are all these of vital consideration? Must we reject a piece of land which has heavy clay soil—that faces north—which, perhaps, is five miles from a station? In these days of advancement we learn to scorn the elements, and even Nature herself. Undoubtedly the progress in housing and poultry hygiene has made it possible for us to poultry farm in areas which were deemed unsuitable in days gone by. Where it is possible, such natural conditions as make for discomfort and heavy working should be made workable by proper manurial treatment and simple drainage; heavy, poor, even swampy land may be successfully cultivated by the prospective poultry farmer.

It is not often that there is unlimited grassland, and it is not wise, even if there be plenty, to use more than the birds require. At no time in the life of a commercial farm may there be any excess in labour charges. Very often at the start it is one man's job. Since one man is limited in the amount of work he can do, so he must set himself a task which can be comfortably accomplished. I do not think the composition of soil need worry him—birds will do as well on heavy as on light—and with a little ingenuity, obstacles such as wet or heavy land can be overcome by simple expedients. It is, of course, extremely helpful when the land is naturally drained and well sheltered from the prevailing winds, and plentifully supplied with water. Where water boards are handy, it always pays to have the water installed at the earliest moment.

We will now consider briefly what is required in the initial outlay. In my opinion, it is both desirable and important for the poultry farmer to be resident on his little plant, and it will prove most easy and comfortable to have the main buildings grouped around the dwelling-house. Incubator house, granary and mixing shed, store shed, etc., can all be ranged together. Where there are outbuildings already existing, it is an easy matter to alter these to suit requirements; but where everything has to be built, the most economical and useful structures are desirable.

We have to make provision for a simple and successful hatching and rearing plant, well ventilated and well lit, high and dry from the weather, with ample provision against inclement weather, houses for the young stock, and the type of laying house adequate to meet all the requirements of the hen.

Let us consider our requirements. We are going to incubate our eggs and rear our chicks artificially.

We must do this without severe losses. It will depend on circumstances whether we use an already existing building, or build an incubator house proper.

One thing is certain. That the most important thing about an incubator house is its perfect insulation. Whether a cellar is used or a wooden structure on the top of a hill, great care must be taken to preserve an equable temperature. Where outbuildings are available, choose one facing north, with windows in the north also. It is most imperative to have a good circulatory current of air permeating the chamber, which ensures the constant renewal of fresh air. If an incubator house has to be built, there is no doubt that a wooden structure with double walls, well packed, and a false ceiling, placed in a protected corner of the farm, will give excellent results. In addition to an incubator house, a small building for egg packing, etc., is indispensable. In fixing the granary, it is needless for me to remind you how much valuable food stuff can be wasted by rodents and other vermin. The ideal floor of a granary is cement. Foodstuffs, however, should be stored in low frames, an inch from the floor, so that air can circulate freely beneath the sacks.

Any weight of foodstuffs stored on a stone or cement floor will often consolidate and sweat. A cement floor, too, is ideal for mixing mashes—either wet or dry.

We will now assume that the grass land is immediately adjoining our little colony of buildings. Where, of course, this is not so, it would be more convenient to have the granary built beside or in the centre of your poultry houses. It is always, however, best to incubate near your dwelling-house, for obvious reasons of convenience.

We have to bear in mind now *simplicity of working*. It is immaterial whether the houses we are using are for small or large flocks—the smaller the flock the greater the need for simple working. The main objection to small flocks by the commercial egg farmer is increased labour. There is not the slightest doubt that the small flock is more productive both in healthy progeny and in supply of eggs. This fact has been so much emphasised in the poultry press that I need not dwell on it here. In my estimation a plant should be worked entirely on a *system of avenues*, or streets.

You know how easy it is to do business, and to act without undue trouble on a wide thoroughfare, and how irritating and time-wasting it is in a badly-thought-out one. So it is with your poultry plant. Your poultry houses should be erected in order at regular distances on avenues or streets wide enough for a cart or light van to travel along. This enables one to call at any or all houses, which face each other on the avenue, without the need of entering endless pens, and crossing and re-crossing the same ground over and over again. The size of the houses and their subsequent inmates will determine the amount of grass allowed each pen, but this will in no way alter the principle of arrangement, but will either shorten or lengthen your streets. Assuming your land adjoins your buildings, it is the simplest plan to strike your main thoroughfare as centrally as possible. From this you can branch off right or left, and you make a system of arteries, all connected with your base. The ideal farm in my eyes has its permanent rearing ground, where chicks are reared to eight or ten weeks. A colony field where the young stock has free range, and is housed in the type of ark colony house till the period of final culling takes place. This is most simply done in a small, well-sheltered field or paddock, or any given piece of grass land, and the small ark houses can be moved regularly, and the whole of the field gradually worked and not over-stocked.

The next stage is the permanent laying quarters—houses fitted to serve the laying bird, whether young or old. Here, again, the houses are best erected in detached or semi-detached order on either side of the avenue, and given whatever range of grass is thought necessary. It is a good practice to allow an acre per 250 head of stock, but there is no doubt that with ordinary care and treatment, the land will accommodate twice the number. Those of you interested in a unit, easily manageable by one man, will find it a considerable saving to split your small acreage up as I suggest, and so be able to supply and attend the birds' wants without undue disturbance. I do not recommend you to face your houses any given way. My advice is face them away from your prevailing wind, and give them floor light in the east and west. Let your doors open into the avenues, and you can then feed and clean, and save yourselves infinite labour.

The planning of a farm is a subject that can be exploited indefinitely, and one is naturally limited, since local conditions and the means at one's disposal influence the policy to be pursued. It is, however, necessary to keep in mind the fact that your plant has to suit all seasons. Plant is so often obviously constructed for the balmy days. It must stand the winter cold and summer heat.

Houses should be built to allow for regular ventilation—roomy and light—where in the winter months the birds may exercise and feed in comfort, during all the hours of winter light. Great care is necessary to ensure fresh air and plenty of it, without draught; the maximum sun rays and a roomy floor space, where birds may exercise freely in dry and clean litters.

In summing up, we will endeavour to discover in our search for the ideal, *grass land which is located on a high well-drained area*, preferably of sandy, gravel or light soil; heavy clay, whilst possible to farm, should be avoided. It is hard to keep clean, especially if the ground does not drain well.

(Continued at Foot of Next Column.)

Where it is possible, *face the houses south or south-east*, so that the sun can enter the houses as much as possible, and seek protection on the north and east by trees or hills.

Sloping ground provides natural drainage. Your plant should be placed conveniently to the other farm buildings, and close to the dwelling-house. *Feed and water supply should be taken into consideration. Locate your poultry houses so that you may make additions* at any time, and so avoid expense of moving or reconstruction.

Gapes.

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

The subject of gapes is brought to the notice of readers now, because the immediate future or last few weeks of the year is the most favourable time for preventive measures—not when the chicks are extending their heads, as if to try and read the future. For the sake of new readers, or those with little experience of poultry-keeping, it may be well to describe the worm, its habits and life cycle. This round or thread-like parasite is known as the Syngamus Trachealis, and its habitat is the windpipe of the bird, on to the mucus membrane of which it fastens, and sucks blood from its victim. When in considerable numbers, a good deal of inflammation is set up, and this leads to a difficulty in breathing, besides the disposition of the worms to congregate in one place, and so hinder respiration. A few often remain in adults, and cause very little if any inconvenience to the host, but it is these which provide the breeding remnant after the chicks of yester year have grown up and gone their way, or succumbed to the pest while young and not resistant.

Among the species affected are the fowl, the turkey, pheasant, pigeon, pea fowl, guinea fowl, and such wild birds as visit the yards and lands where domesticated birds are kept. Total eradication of the pests is not possible, as the visitants will bring it in again when a place has been cleared, or nearly so. Adult turkeys more often harbour this worm than grown-up fowls. Ransom found 23 per cent. of turkeys harbouring these worms where none were present in 635 fowls examined. There is a great disparity between the size of the male and female, the former being only about a quarter of an inch in length, while the female will be four-fifths or more. The little male forms an early attachment, in a very literal sense of the word, as he is permanently fastened to the female in a position near her anterior extremity. Only when the female bursts with eggs does the union cease. The latest observers tell us that ova may pass out while the attachment continues, and that the whole process of reproduction can be carried on within the host. Certain it is that ova passed out can remain unharmed through the winter, and the embryos or young worms gain access to the following year's chicks. This then is the reason for bringing the subject to the reader's notice at the time of year when top dressings will best soak in, and when, if ever, the poultry-keeper is least harassed with the care of the flock. The embryos making their temporary home in the field do not like salt. They cannot survive a dressing of one per cent. of it in water, and this is not enough to do damage to the pasture plants. It will also destroy the very similar worms which cause husk in calves, lambs, and pigs, and the snails which harbour the fluke of rot or liver disease in sheep, and the round worms (ascarids) of horses and pigs. If such a variety of enemies can be slaughtered by the same comparatively cheap remedy, it is surely worth while applying it. Soot, especially that collected from towns where coal and not wood is burned, contains more or less sulphurous acid, and this also destroys worms and their embryos, while having a manurial value to leave behind. It is generally agreed that most of the land of this country is deficient in lime. This, too, is inimical to the welfare of the worms which infest the air passages of animals and birds. It should be worth spreading for the dual purpose of a parasite destroyer and a plant food, and a bone builder for young stock. In what state should it be applied? If already slaked it will not be so fatal to worms, but will not burn the grass. If lumps of fresh burned lime are placed at short intervals on a field, it will soon slake, and can be knocked about and further spread, and will have done much to purge the soil of parasites, both visible and invisible.

An excess of salt, anything, say, over 8 cwt. to the acre, has a tendency to check the sole of clover and promote the coarser pasture plants, but up to that amount no damage to clovers need be feared. After such a moist year as 1924 we may expect the class of parasites we are discussing to multiply and prove more than ordinarily numerous, and the opportunity should be taken between now and Christmas to attack them at their weakest moment.

Salt and lime and soot are also destructive of earthworms, whose bodies have been found to contain the larvae in their intestinal canals. We have also to consider the fact that infection of chicks occurs through the water drunk, and when water plants are dead, and ponds and water courses open, we may see to it that drainage will carry away the stagnant, and permit of the less impure filling up our sources of supply. Tainted water brings parasitic worms of many kinds, and the germs of diseases such as the prevalent coccidiosis, or so-called turkey liver disease which has spread and brought disaster to many poultry-keepers. Infection through the water supply by germs in it, has not generally entered into the farmer's calculations. It is an unhappy fact that the well-kept flock may become infested and infected by the larvae of worms and the germs of microscopic organisms from lands a long way off, but whose water supply is from the same stream. Disease has been arrested in certain instances by fencing off a natural supply and giving only boiled or sterilised water. The latter can always be prepared and larvae destroyed by the addition of an ounce of chlorinated lime in a gallon of water. The taste is but very slight, and may well be disregarded, as such water is an internal disinfectant, with other advantages besides those named.

Some experiments with chloroform with chicks badly infested with gape worms have not been completed in the season now ended, but it is hoped to publish them later. The essence of the plan is to kill the worms by inspiring chloroform without doing the hosts any harm or incurring any risks.

(Continued at Foot of Next Column.)

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all Queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

W. E. P. (Brighton). Thanks so much for your appreciation of "Eggs." I am glad that you find it a mine of information. The best dry mash for your purpose will be the one which I have so frequently given :—i.e., one bran, one alfalfa meal, four fine white middlings, one maize meal, one S.G.O., and one fish meal or meat and bone meal (all parts are by weight). As the grain feed, give three parts kibbled maize and one wheat. You are giving too much grain in the morning; reverse the process, and give a small handful between every three birds as the first feed, then open the mash hoppers and leave them open all day and give the last feed of grain about an hour before they go to perch—say one handful each bird. You must discontinue the wet mash very gradually, not suddenly, or else you will throw your birds into a moult. Let them have the dry mash hoppers, and use less wet mash every day until they can do without it altogether. Particulars of the S.P.B.A. are being sent you.

R. R. (Powburn). Presumably the March-hatched pullets which began laying in August have dropped into a neck moult, as they have stopped so suddenly. If this is not the case, it would be advisable for you to handle them and see whether they are in a condition to lay. The probability is that they were rather on the light side when starting. If this is the case, reduce the bulk of the mash by omitting half of the bran, and feed kibbled maize as the grain feed. It would be well to examine them to see if there is any red mite pestering them.

G. B. (Blackburn). I fear your mash is a failure because of the excessive amount of bran your are using. Now reduce this to 2 lbs., increase the thirds to 4 lbs., reduce the S.G.O. to 1 lb. and omit the fish meal, and add another ½ lb. meat meal. Keep the birds active. I have a suspicion that they are at present rather over-fat. Do not scald the bran; scald the other ingredients, but reserve the bran to dry off these with. This will be suitable for your purpose, but it is important that your hens should get plenty of exercise.

R. F. C. (Beccles). The sample you send of S.G.O. is not "Sussex" ground, although it would answer the same purpose. If you examine it closely you will see the husk is very apparent, which should not be in a good sample of "Sussex" ground oats. The "supers" are quite a good sample. The maize meal, although a little coarsely ground, is also quite good. Bran is poor—too poor to use as a poultry food. We are sending you particulars of the S.P.B.A. by post.

"Orchard" (Churchill). The sample of meat and bone meal you send is quite satisfactory, and in conjunction with the formula you are using should give good results. I do not consider that 10 per cent. oil is too high. Yes, the percentage of meat and bone meal you are using would be quite satisfactory. Sorry your letter was received too late to enable us to give a reply in last week's issue, but owing to the Dairy Show we had to go to press much earlier than usual. I quite agree with you that "Eggs" is the very best "egg" anyone could possibly buy for twopence, and do you note that although the price of eggs has risen and all poultry papers increased the price of their "special egg" because of their Dairy Show issue, "Eggs" was the only one to sell at twopence, in spite of the fact that it was double-yolked, and contained more nourishment than all the others!

F. C. (Sandhurst). You should have returned the cockerels at once. Now I am afraid you have no claim upon the breeder, as his conditions were "three days' approval." You cannot dispute the record of the dam as you have no evidence that it is not correct, and the fact that they are "miserable specimens" does not necessarily prove that she did not lay the number of eggs stated. If they are as you describe, then it would be a grave mistake to mate them, and you must cut your loss, as the breeder refuses to listen to reason. (2) Yes, I have often seen awards made to "in-kneed" birds in both exhibition and utility classes at different shows. It is an oversight on the part of the judge in most cases.

G. L. (Devon). I do not understand what you mean by a "semi-non-sitter." A bird belongs either to a broody or non-broody breed. We occasionally get broody Leghorns, but I should not call them "semi-non-sitters" on that account. (2) No, you will not get white progeny if you intermate the two pens of cross-bred Leghorn-Wyandottes, in spite of the fact that you have selected only those birds which are pure white. On the contrary, you will get all sorts of colours in the progeny, because the external characteristics do not represent everything that your birds have inherited.

W. A. (Marston). (1) First as to the broody tendency of the Wyandottes. You know this is an inherited factor, and continuous selection for high fecundity materially reduces the tendency to broodiness in a flock. I have no faith in any anti-broody pills, and it is misleading to say that a hen becomes broody because for the time being she has exhausted the egg-producing capacity of her system. Do not breed from very broody hens. To break them, give a dose of Epsom salts, place them in a broody coop, where it is light and cool; give them nothing to eat for the first 24 hours, and then feed them well. They will soon come into lay again. The great thing is to catch them at once; don't let them have two or three days on the nest. (2) As you want a non-broody breed, and have cut out Leghorns and Anconas I am in a difficulty. Minorcas would hardly suit you, the Bresse is broody, but not like the recognised sitting breed. They are not delicate, and you would find that either Black or White do well. (3) All the White Wyandottes are good enough to register. They have passed our test, except the one which did not lay until December. (4) I do not think it advisable to use a male from Hen 1 to the pullets. Her record is hardly good enough. (5) I am glad you have such good hatching and rearing results, and note that you have kept to my mash formulas. I have never tried the food you mention, and so cannot express an opinion. (6) I do not think you have seen the white split maize recommended in "Eggs." There is nothing against its use; there are several varieties of maize, with different analysis.

Avalon (Glastonbury). I would not use the trench system instead of dropping boards in a small intensive house. I do not think the labour saved would compensate for the loss of floor space and the general health of the birds. (2) I prefer the perches from back to front; they should be

12 inches apart, and with a heavy breed they should be allowed 10 inches of perch room per bird—they want that in hot weather. (3) I quite appreciate that White Leghorns will do well farther north, but I was dealing with a special case, and in this particular instance I believe Blacks will be better.

B. W. F. (Elswood). Your question is far too big a one to answer fully here, but I will deal with it as I can. An analysis of the body of a fowl would reveal to us that it is composed of protein fats, carbohydrates, mineral matter, and water. These, then, are the substances which we have to introduce into the body to repair the waste of tissue, build it up, and supply it with heat and energy. You will see, then, that these are required both for the chick, the growing stock, and the laying hen. The latter will put any surplus above what she requires for maintenance to egg production, therefore all three will require approximately the same albuminoid ratio; but a highly-fecund hen may draw so heavily on her body reserve of fat that it may be necessary to feed her on a wider ration. I should have included the breeding pen in the above. With regard to the fattening, we do not want a ratio, we merely want a mixture of digestible foods, rich in fats and carbohydrates. Our table of analysis will give us that. As to the moulting hen, the 1-5 ratio will be right for her, but we must be guided by her bodily condition, and, if she is on the light side, give her a slightly wider ration. You complain there is too much rule of thumb, but I think you are far more likely to run into the opposite mistake and become the worst of all feeders, the purely mechanical one, if you attach so much importance to albuminoid ratios and tables of analysis. You will do far better to turn your attention to the study of, first your hens, and secondly food values. I have frequently pointed out that it is quite easy to get the same albuminoid ratio with two mashes, one of which may be very good and the other inferior as far as nutrient value goes. As to the difference in tables of analysis, this depends on the samples analysed. There are over 200 different varieties of wheat, some with a very much higher protein content than others, in addition to which we have to consider the different soils in which they are grown. The bulk of the mash should be adjusted to the bodily needs of the birds as far as possible; there is no "correct" bulk. Fowls digest fibre badly, we should feed the most digestible foods, having some regard to the quality of that which is digested.

POST-MORTEMS.

E. G. The cause in the case of the W.W. Pullet was peritonitis, due to crushed and decomposed yolks that had failed to enter the oviduct. In these highly-fecund birds the normal sequence of events becomes disturbed, the ova maturing in the ovarium too quickly to be taken up by the oviduct at the proper time, hence free yolks in the abdominal cavity, which, if they become ruptured, decompose and set up peritonitis and septic poisoning.

C. H. P. Infectious cerebro-spinal meningitis was the cause in the case of the goose. The internal organs, as is usual with this disease, appeared perfectly healthy, but the coverings of the brain and spinal cord were highly congested with blood, and thicker than normal. The cause of this disease is still unknown, and the treatment can, therefore, only be experimental. Good results have been obtained by administering to each bird as a preventative twenty grains of hyposulphite of soda, either given in the mash or drinking water. This treatment should be commenced immediately the disease is detected and continued daily for a week or ten days.

P. The cause in the case of the pullet was phosphorous poisoning, the bird having most probably picked up a bait set for rats. The poison had become absorbed into the system, as there was pronounced fatty degeneration of all the internal organs. The antidote for this poison is potassium permanganate, a tablespoonful of a one per cent. solution being the dose, which may be repeated three or four times daily. Unless the antidote is given directly poison is suspected and before it has been absorbed into the circulation, there is very little hope of saving the bird.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

NATIONAL LAYING TEST—1923-1924.

FINAL RESULTS.—LIST OF LEADING PENS.

Section 1—Championship (10 pullets).—Fowler, Miss M. (W.L.), 2126 pts.; Rogers, Warwick (W.L.), 2077 pts.; Golden, W. M. (R.I.R.), 1934 pts.; Rodwell, Richard (W.L.), 1799 pts.; Hughes, J. E. (W.W.), 1797 pts.; Bradbury, W. (W.L.), 1783 pts.

Section 2—White Leghorns (5 pullets).—Welch, F. R., 1193 pts.; Gonne, Capt. V. C. M., 1124 pts.; Knight, Mrs. E. M. L., 1099 pts.; Smith, Sydney, 1097; Cummings, J. B. V., 1075; Budd, Major C., 1074 pts.

Section 3—Black Leghorns (5 pullets).—Margerison, I., 1027 pts.; Venn Carr, Ltd., 969 pts.; Moore, J. and A., 967 pts.; Metcalfe, G. B., 955 pts.; Rodwell, Richard, 954 pts.; Snowden, Frank, 953 pts.

Section 4—Non-Sitting Breeds (5 pullets).—Hall, R. Charles (Cuckoo L.), 1033 pts.; Thompson, J. H. (Anconas), 986 pts.; Legg, C. E. (Cuckoo L.), 940 pts.; Hughes, J. E. (Anconas), 933 pts.; Eastman Bros. (Anconas), 901 pts.

Sub-Section 4a—Exchequer Leghorns (5 pullets).—Outhwaite, Sam, 810 pts.; Cayley, Vice-Adm. C., 760 pts.; Bloom, D. G., 673 pts.

Section 5—White Wyandottes (5 pullets).—Rodwell, Richard, 1097 pts.; Sewell, Ralph, 1064 pts.; Sikes, E. H., 1017 pts.; Seddon, Harold, 1012 pts.; Cheape, Lady Griselda, 1001 pts.; Cross, C. G., 997 pts.

Section 6—Rhode Island Reds (5 pullets).—Salt, W. & T., 1082 pts.; Capper, A. H., 1022 pts.; Reeves, G. W., 1007; Wolryche-Whitmore, B. A., 963 pts.; Baldwin & Sons, H., 931 pts.; Tresham, Guy, 894 pts.

Section 7—Sussex (5 pullets).—Rossall-Sandford, F., 968 pts.; Bradbury, W., 936 pts.; Slade, M. W., 896 pts.; Welch, F. R., 873 pts.; Coaley Poultry Farm, Ltd., 871 pts.; all Light Sussex.

Section 8—Sitting Breeds (5 pullets).—Parsons, H. R. (Aust.), 997 pts.; Kemp-Gee, A. M. (Buff Rocks), 984 pts.; Morrison, D.S.O., Major J. A. (Bl. Orp.), 978 pts.; Welch, F. R. (Buff Rocks), 976 pts.; Crookes, Mrs. M. (Buff Rocks), 949 pts.

Sub-Section 8a—Australorps (5 pullets).—Parsons, H. R., 997 pts.; Chaloner, Hon. E., 721 pts.; Wienholt, Mrs. G. G. V., 720 pts.

Sub-Section 8b—Buff Rocks (5 pullets).—Kemp-Gee, A. M., 984 pts.; Welch, F. R., 976 pts.; Crookes, Mrs. M., 949 pts.

Sub-Section 8c—Orpingtons (5 pullets).—Morrison, D.S.O., Major J. A. (Bl. Orp.), 978 pts.; Gough, P. J. (Buff Orp.), 829 pts.; Prior, C. (Buff Orp.), 791 pts.

Section 9—Members N.U.P.S. (2 pullets).—Foster, D. P. (W.W.), 423 pts.; Hufton, S. (W.L.), 411 pts.; Robinson, A. H. (W.W.), 380 pts.; Stott, G. W. (M.Dais.), 359 pts.; Dalby & Jackson (W.W.), 341 pts.

Section 10—Teams (5 pullets).—Tottenham Utility Poultry Society, 1024 pts.; North Essex Branch, 1014 pts.; Hunslet & District Utility P. Association, 940 pts.; North Lancs & Westmoreland Utility Poultry Federation, 903 pts.; Worcestershire Branch, 890 pts. Various breeds.

Correspondence.

BOGUS NEWSPAPER STUNTS.

To the Editor of "Eggs."

Dear Mr. Newman,—The receipt of the enclosed letter to-day makes me think that possibly a few words in "Eggs" on the working of the Bogus Newspaper Stunt, which seems to still thrive on fresh victims, might be of service to your readers, and possibly save some from being fleeced.

The procedure in all cases is very much the same, and usually runs somewhat as follows:—

(1) A letter is received stating that as a leading poultry breeder, dog fancier, or manufacturer, as the case may be, you will probably be interested in the newspaper which is to be published. In return for a twelve months' subscription the Editor will be pleased to give you a free 2in. advert. space for the twelve months.

(2) On acceptance of this offer a letter will be received saying that as 2in. is so small possibly you would like to take a further 4in. at the purely nominal charge of, say, £2 for the full period.

(3) Next comes a letter similar to the enclosed suggesting a free article. If this is accepted and photos sent, then comes:—

(4) A letter praising the photographs, and saying they ought certainly to be included in the article to give the greater interests. This can be done free of charges except for the cost of the blocks. If the victim accepts this offer, he will find his article appear with several half-page illustrations, for which blocks will be charged at four times their value, running up to anything from £5 to £50.

(5) Also at some period during the scheme will come the suggestion that further copies of the issue containing the article should be ordered. In this case it will noted it has arrived in the first letter.

From the above it will be seen that the possible expenditure of a victim can be summed up as follows:

Twelve months' sub. ... ... ——
Further 4in. space ... ... ——
12 extra copies ... ... ——
Blocks, say ... ... ——

——

On receipt of the first issue he will find it is nothing but a collection of similar articles to his own. The entire circulation of the paper will simply equal the number of victims roped in. It will be unobtainable at any shop or bookstall, and after about the third issue will quietly cease publication.

After a period of rest the scheme will start again, under a fresh name and address, but similar tactics.

The above short outline will show what a snare it can be, especially to beginners in the industry.

(Continued at Foot of Next Column.)

Turkeys.

THE MALE BIRD.

By BERNARD REDDAWAY, M.S.P.B.A.

It is not possible to over-estimate the importance of the male bird in the breeding pen. He it is who has the power to ruin the whole season's hatching and rearing, or to make the year a very successful one.

He is worth exactly as much as all his hens put together, because all the progeny have half of his blood in them, while all the hens combined contribute the other half.

It must always be kept in mind that the rearing of any stock begins in the breeding pen, for it is from their parents that they get what stamina they possess.

The cock must be a good size, but not large enough to be clumsy, fierce to all outsiders, but considerate to his hens. He should carry himself with all the pomposity of a Sultan strutting around his harem.

A large number of people recommend the use of a year-old bird for breeding purposes. But everything points to the advisability of only using birds which have reached the maximum age of eighteen months.

In the wild state, when the laying season arrives, the cock turkey takes four to six hens, and goes with them to the higher ground to commence breeding operations. Now, presumably, there are as many male as female turkeys hatched, so that if each cock takes an average of five hens for himself, four male birds are left unmated to every breeding pen made. That is Nature's method of selection of the best for the reproduction of the species.

The lucky cock bird is the one who has conquered the other four in battle. Now is it not likely that the two to four-year-old birds would defeat the one-year-olds? Of course it is, so that in the wild state birds of over one-year-old are used for breeding. So we should follow this example, and only use the older cocks.

The turkey cock must have his spurs and nails trimmed if it is found that he is hurting the hens with them. He must be sound in every way, and must not have suffered from any illness during his lifetime. Needless to say, he must be unrelated to his hens.

Do not breed from a bird who has a crooked breast, for although that complaint may not be directly hereditary, it is most probable that the tendency to have soft bones, which are the predisposing cause of crooked breasts, is hereditary. If early perching was the prime cause, nearly all wild birds would be crooked breasted as they always perch very young.

Anyhow, if crooked breasts are hereditary or not, it is hardly advisable to breed from a faulty bird if it can be avoided. ***(To be Continued).***

I was once had myself (fortunately only to the extent of the 12 months' sub.), and every device possible was used to obtain further expenditure.

Yours faithfully,
READER.

The sum which is parted with is often very considerable, owing to the excessive charges made for blocks, and it should be added that the circulation depends almost entirely on the number of copies ordered by the unfortunate victims.—(Editor).

Scientific Poultry Breeders' Association.

**Full particulars of membership will be sent by return on application to the Secretary,
Mr. Tom Newman, The Beeches, Rudgwick, Sussex.**

The Annual General Meeting.

The Annual General Meeting of the S.P.B.A. was held in the Club Room at the Agricultural Hall, on Thursday, the 23rd, the President, Mr. J. G. Kitson being in the chair. As usual, there was a crowded attendance, and many were unable to obtain admittance.

The President, in welcoming those present, remarked that he felt sure they would be pleased at the reports which were to be placed before them. Referring to the large increase in membership, he said that it was obvious to them that the room in which they were holding the meeting was quite inadequate for their needs. The Council had endeavoured to obtain accommodation outside, but had not succeeded, and he asked them to consider the matter, they would later have a short discussion, and by that means find whether members would prefer a meeting outside the hall next year.

From the accounts to be presented to them, they would learn that financially they were in a very comfortable position, and they must appreciate the fact that in "Eggs" they had a property of very considerable commercial value.

The meetings of the National Poultry Council had been regularly attended by their delegates, and they would be pleased to know that Mr. Meekings had been elected to the Executive Committee. They were, of course, all very proud of the fact that their Secretary was now President of the Council.

The Secretary's Report appeared in last week's ssue of "Eggs."

There was some discussion on the Treasurer's report, which was very favourable. The balance-heet was published in last week's issue of "Eggs." Col. Langdon questioned one item in the accounts, but Mr. Mudie Draper produced the auditors' signed report, which confirmed the balance-sheet, and the item was explained to the satisfaction of he meeting, Col. Langdon alone dissenting.

The President, in submitting the "Eggs" Committee report, said that he had pleasure in reportng steady progress. Last year their circulation was 10,000 copies weekly, this year it had increased to 12,000. There was now a steady revenue derived from the paper which was most useul to the society. The outlook was very bright.

In the discussion which followed, Mrs. Mumford expressed the opinion that there were too many advertisements, and the Council would do well if they reduced them and took stronger measures to eliminate undesirable advertisers, while a gentleman present remarked that he read the paper each week from cover to cover, and asked for more reading matter. The Secretary pointed out that they had already enlarged the paper, and if they reduced the number of advertisements it would mean they would have to reduce the literary matter again. Much more was spent than had been done before in obtaining the best articles from the greatest experts, and these were paid for at a higher rate than any other poultry paper paid in order to get the best.

Mr. Bennett asked that an index should be published each week, and it was promised that this should be given consideration.

Food Purchase Scheme.—Mr. P. Hedworth Foulkes submitted the following report :—

REPORT OF FOODS COMMITTEE.

In accordance with a promise made at the Annual General Meeting last year, a Committee was set up to consider the possibility of formulating a scheme by which the members of the Society might be supplied with feeding stuffs on the best possible terms.

This Committee has met frequently and given much time and thought to the subject, but up to the present has not been able to devise a scheme which could be easily and economically worked.

It became clear at an early stage that no considerable advantage could be offered to those conducting poultry farming on a large scale, and who were in a position to buy two-ton lots direct, either from Mark Lane or the Shippers.

The Committee therefore devoted its attention to the consideration of what could be done to assist those who could only purchase in small quantities, and an endeavour was made to set up Local Distributing Centres. To effect this members who would be willing to co-operate in this method and offer their services in carrying it out were asked in "Eggs" to send in their names. About twenty replied, and the Committee set to work to evolve a scheme for the benefit of the smaller buyers.

The idea was to appoint a local manager to collect orders to make up two-ton lots, which would be consigned to him, and he would arrange for the various buyers to collect from the station.

The question of finance then came in, and it was obvious that unless cash accompanied orders it would be necessary to raise capital, and the Committee came to the conclusion that even if the business could be done on a cash basis to commence with the time would inevitably come when capital would be required.

This led up to a decision that the S.P.B.A. could not as a Society undertake the work, and that if it was to be carried out it could only be done by forming a Co-operative Society for the purpose.

Rules were therefore drawn up and the suggested name of the Society is "S.P.B.A. Supply Society, Ltd."

The Committee feel that the conclusions they have arrived at involve a much greater scheme than was originally intended, and they present their report with the object of showing that they have attempted to carry out what the Council was asked to do, but they feel that any further action should be authorised by the members at a general meeting after full consideration of the report.

In the discussion which followed, Mr. Coates, Secretary of the Heathfield Co-operative Society, gave some useful information, and it was eventually decided that a committee should be formed from the members to see what steps could be taken.

A question was asked as to whether the Council could not take steps to send out to members samples of good and bad foods for their information. Capt. Heseltine said he thought members ought not to expect to be spoon-fed; they could easily ascertain for themselves, if they were in any difficulty, by a little study. The Secretary said he could not agree with Capt. Heseltine. He received scores of samples weekly, and the quality of the majority of these, particularly in millers' offals—which often had no greater nutritive value than sawdust—caused him a great deal of anxiety. He had come to the conclusion that there was a great deal of under-production, due to under-nourishment occasioned by the use of foods of low nutritive value. He promised to see what could be done in the matter of samples.

Major Few's resolution referring to the payment of members of the Council for expenses incurred in attending meetings was next considered. The Major, in moving it, said he thought it was only fair that they should not do so at their own expense. The President said that the members of the Council had carefully considered the proposal, and they were quite satisfied, and would rather go on as they were doing. This announcement was received with applause, but Mr. Frank Snowden said he thought the action of the Council was a mistaken one. It might be very desirable to have representation from the North, and there was many a good man who would be unable to pay his own expenses, therefore his services would be lost to the Council. He was not speaking for himself. This put another aspect on the matter, and Mr. Snowden's remarks were supported by others. It is evident that the Council will have to reconsider the matter.

The Council's resolution that intending candidates for office should not be allowed to canvas for votes, or their election would be declared null and void, was next considered. Mrs. Mumford said that she considered it unnecessary; they did not know all the candidates, and if they canvassed they would know all their qualifications. This view, however, received little support, and the resolution was carried by a large majority.

Election of Officers.—The President said that there were three vacancies on the Council, Messrs. Wait and Bostock Smith, the retiring members, were seeking re-election, but, much to their regret, they were losing the valuable services of Major Eden, whose duties would not permit him to attend their meetings; he had rendered them very valuable help, and they were very sorry to lose him. Mr. Fletcher Hearnshaw was the other candidate, and as there was no opposition he declared Messrs. Wait, Bostock Smith, and Hearnshaw elected.

The President then said he had a very pleasant task to perform. Last year their members had very generously responded to the appeal for the funds of the National Poultry Council, this year they had again done so, and he had great pleasure in handing to Mr. Brownson, as Treasurer of the N.P.C., a cheque for £250.

Mr. Brownson, in reply, said he could hardly find words to thank them. The S.P.B.A. had always given the greatest support to the National Poultry Council, not only financially, but morally, while their delegates were all men whose wide experience was of the greatest value to the Council. He thanked them again and again for their support, and he should take an opportunity of thanking them at the next meeting of the Council.

The President then called on Mr. Edward Brown, who received a very hearty reception. Mr. Brown, who said he had travelled 1,200 miles in order to be present at the meeting, having attended a meeting at the International Institute of Agriculture at Rome, said that they must look forward rather than back, there was great inspiration sometimes in looking back. He had told them at Rome that he had not come to apologise for the poultry industry. Their present position had been attained by their own initiative and enterprise, and they had not received the assistance of the powers that be, which had been the good fortune of other industries. The question of food was of enormous importance; it could not be solved by a central body, but only by the co-operation of all the component parts. He paid a tribute to the good work of the S.P.B.A., and thanked them all for their support of the N.P.C.

Mr. F. W. Wait proposed that Mr. Mudie Draper be re-elected to the office of Treasurer. He said that they could not wish for a better Treasurer than Mr. Draper, and they were very fortunate in having him. This was seconded by Miss Maddison, who spoke in the highest terms of Mr. Draper's ability.

Mr. Draper thanked them all for re-electing him, and for their confidence in him.

The President then said it was with great pleasure that he proposed that Mrs. Hunter should succeed him in the Presidential chair. Mrs. Hunter had been a member of the Council since 1916, and a hard working member too. They all had confidence in her, and it was fitting that the S.P.B.A. should, as the most progressive society, take the initiative, and have a lady President.

Mr. John Smart said he had the greatest pleasure in seconding, Mrs. Hunter had been a most enthusiastic member of the Council, had worked very hard for the S.P.B.A., and it was only fitting that she should receive this acknowledgment of her services.

Mrs. Hunter, who was loudly applauded, said that she thanked them all most warmly for the great honour they had done her in electing her to the Presidency of the S.P.B.A. She would do her best to carry out her duties, her chief qualification she thought was that she had been a member of the Council since 1916. She could only thank them again and promise to do her very best.

At this point the President announced that they were compelled to close the meeting, as it had been engaged for another society and their time was up. Before doing so, he was anxious that they should decide where the Annual General Meeting should be held next year. Should it be held in this room? To this the reply was a "No." Should it be held during the Dairy Show week? To this came an equally emphatic "YES." It was finally decided that it should be held outside the hall, and in the latter part of the day. Several members expressed the hope that arrangements would be made for a dinner to be held at the same time.

OUR NEW PRESIDENT.

Mrs. Hunter, our new President, is very well-known to a large number of our members, and, without doubt, her election to the Presidency will be very popular. It is possible that only members of the Council are fully aware of the good work she has done on behalf of the S.P.B.A. since she became a member in 1916. She was one of the first members of the S.P.B.A., and is a keen and clever breeder, her favourite breed being the White Wyandotte. Every member of the Council holds here in the highest esteem and respect, and all will do their best to make her term of office as pleasant for her as possible, as we know she will do hers for the benefit of our Association.

OUR LATE PRESIDENT.

It was a matter of real regret to all of us that the abrupt termination of the meeting prevented the public expression of the gratitude of our members to our late President, Mr. J. G. Kitson, for his splendid services to our Association during his term of office. The S.P.B.A. has always been fortunate in its Presidents, who have invariably given of their best, and worked most assiduously for it. They have all been proud of its progress, and they have reason to be proud of their share in it. It would be impossible to speak too highly of Mr. Kitson's work; as a President he has been all that we could desire. As a Chairman no one could be better. He is invariably courteous and considerate to all, and manages to get through the business in a most expeditious manner without neglecting anything. We owe him a deep debt of gratitude, for much of the success of the past three years has been due to his initiative and hard work. It is the hope of all of us that one whom we all hold in such high regard and respect will for many years to come continue his connection with the S.P.B.A. We cannot spare him yet.

LIVERPOOL AND DISTRICT BRANCH.

The November Monthly Lecture will take place at the "Common Hall," 3, Hackin's Hey, Liverpool, on November 13th, 1924, at 7.30 p.m. Mr. F. Walsh will give a paper on "Incubation. This paper will deal with incubation on a small scale for the poultry-keeper who wishes to incubate up to 500-600 eggs.

There will be an egg show at the meeting for members. Plate of four eggs, three classes, white, brown, tinted. Entrance fee 6d. per plate. Substantial prize for each class. All entries to be received by the Secretary by 7.25 p.m

We are now 100 members strong, and I hope, with the help of all members, to make our branch double that number. So will all members endeavour to get one new member each. There are a good number of members of the Parent Society in Liverpool and the surrounding districts who are not members of the Liverpool Branch. We should like those members to join our branch, and get the opinions of the various lecturers, and also partake of the advantage of our foodstuff scheme.

Now if any member of the branch has any suggestions to make for the welfare of the Branch, the Hon. Sec. will be pleased to receive same, and put them before the Committee. Now, please don't be shy of writing, quills are plentiful now the birds are moulting.

Don't forget the "Egg Show," as the Secretary has ordered a crate of plates from the Potteries, and he wants them filled.

R. J. Thomas, Hon. Sec., Liverpool Branch, 9, Grey Road, Walton, Liverpool.

The October Meeting of the Liverpool Branch of the S.P.B.A. was held in the "Common Hall," on Wednesday, 8th October, the President of the Branch, Mrs. Hodgins, being in the chair.

Mr. Jack Wrennals, of Will Barron's Poultry Farm, Bartle, near Preston, gave an interesting lecture on "Winter Egg Production" from a practical poultryman's point of view. The lecture was highly appreciated by all present, and it led up to some very interesting questions.

Mr. Newman's words at the conference as to Mr. Wrennalls being an excellent lecturer from a practical point of view was heartily endorsed by all present.

A vote of thanks to Mr. Wrennalls was moved by Mr. Robert Thomas, and seconded by Mr. R. A. Currie, and carried unanimously.

Editorial.

THE DAIRY SHOW.

The forty-sixth Dairy Show has come and gone. Interest has been keen as ever, although, possibly owing to the counter-attractions of the Motor Show and Wembley, the attendance did not appear to be as large as in previous years.

Again we had an exceedingly busy time at the S.P.B.A. Stand. Many old members called to renew acquaintance, make suggestions, and obtain information. We can say, without fear of contradiction, no stand in the gallery ever attracts more visitors. At last we were able to obtain a little more space, so were able to manage with greater comfort than in previous years.

Many were the compliments received on the special issue of "Eggs," which, by common consent, was voted "the best ever yet." Next year we hope to beat this. The fact that we were able to give so much additional matter, without raising the price, and were the only poultry paper which did not charge more, was much appreciated by our readers.

The excellent photographs of record layers attracted a great deal of attention. The various models exhibited proved of great interest, but, as ever, chief interest centred round foodstuffs. The models of mash hoppers, particularly that for chicks, so constructed that they could not foul the mash, interested many of our visitors, as did the models of fattening appliances. There was a great demand for Mr. Capper's book and the Handling and Observation charts. Mr. Clarkson was in attendance, and his advice on the marketing of table poultry was sought by a great number of our members, who spoke in the highest terms of the value of the articles on marketing which he has contributed to "Eggs."

If poultry-keepers came to the show in search of houses or appliances, they had a large and varied choice. Makers have more original ideas, and are evidently hard at work trying to improve on the standard designs. It was a great show, and full of interest.

Turning to the birds, we find there is a slight decrease in the number of entries. The decline in Orpingtons was most noticeable, and it is persistent. It is absurd to ask if the Rhode Island Red is losing its popularity, but they were a hundred less than in 1922, and 32 less than last year. Wyandottes, too, were down, but an increasing interest is being taken in Rocks, and both Barred and Buff appear to be coming into popular favour. Modern Langshans and Orloffs were not represented, and Redcaps, too, were absent.

The Utility Classes were well filled, and it is again pleasant to be able to congratulate exhibitors on the improvement in the way they stage their birds; the utility breeders are certainly learning the art of showing.

We could not quite follow the judge's award in the Rhode Island Red Class; the winner was a nice level colour and good type, but she had a very moderate head, and one would not class her as a layer. To our mind the third bird should have had the award. She had a far better head, was nice type and colour. This is a difficulty which will have to be surmounted. While in full sympathy with the judge's ambition for breed improvement, they will defeat their object if they lose sight of the fact that these are utility classes. In Wyandottes Capt. Kaufmann was first, with C. W. Goode a good second. The judge must have had a difficult choice between the two—both were typical. Mr. Brady won with a Light Sussex in the Sussex Class. A nice bird, failing a little in head points. Messrs. Blaksley and Blyth won in the A.O.V. Class with a smart White Bresse pullet, but she failed in head points, the comb being too heavy, and lacking the dark Bresse eye. Mrs. Grant was second with a really good Red Sussex, which pressed the winner hard. Mr. Rodwell won in White Leghorns, with a very smart pullet, failing a little in comb. Stranack was a good second with a nice pullet a little on the small side.

One gets the idea that there is a gradual, but still perceptible, coming together of the fancier and utilitarian; a better appreciation of each other's problems. This is gratifying; the day of the extremist is passing. We may perhaps arrive at a mutual understanding without being quite aware that we are doing so. The Poultry Club Standards, with one or two exceptions, are not inconsistent with the ideal of the utility breeder. If we can impress this fact upon the judges, it may perhaps influence them to judge to standard. What an excitement it would create if a protest were lodged with the Poultry Club that a winning bird did not conform to the standard.

THE SOCIAL SIDE.

Very pleasant and enjoyable were the annual dinners of the Poultry Club and the N.U.P.S., at which it was our privilege to be present. There was a very large gathering at the former, presided over by Major Tom Potter; speeches by Mr. P. A. Francis, the Poultry Commissioner; the President; Mr. Rice, the Secretary, who was cordially welcomed after his serious illness. Mr. Clem Watson, whose humorous speech, when proposing the toast of the ladies, caused much amusement, and was wittily replied to by Mrs. Lewer. Mr. Watson left the impression that the activities of the ladies, not only in our industry, but in other walks of life, was causing him serious uneasiness. In a neat little speech Mr. Leslie Williams proposed the Press, which was responded to by Mr. Lewer. The President-elect, Mr. C. N. Goode, was given a very hearty reception, and his speech pleased everyone. He began by telling us that he was born 20 years before the birth of the Poultry Club, but that he intended to keep going as long as possible. He was not an extremist. He believed in the maxim, "Beauty with utility," and he was glad to see these two sides of the fancy were coming closer together.

There was an excellent musical programme rendered by the Welsh Singers, which was much enjoyed by all present.

(Continued at Foot of Column on Next Page).

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

(40th ARTICLE).

CULLING (or grubbing) and TOP GRAFTING: A reply to Queries.

There is no doubt that the fruit grower wants to carry out a grubbing operation amongst his fruit trees, just as the poultry-keeper "culls" his birds, for it is quite as unprofitable to let the useless trees occupy valuable ground as for the bad layers to consume good food, and take up room in the pens that could be used to better advantage. In fact, I might say not merely "unprofitable," but worse, for some trees are best cleared right away, as they will more than likely spread trouble or disease if left.

It is noticeable that in spite of a batch of trees coming from one good nursery, and the planting and care of the trees being equal and generally treated in a similar way, we often find some in our orchards that will not "get away," but hang back, and eventually, on account of poor condition, show signs of disease in one of the many forms. Now the sooner we have these out and burnt the better, for although we are often tempted to "spare the axe," to give it just one more chance, it is only wasting time and trouble.

We sometimes plant a certain variety of tree on the advice of experienced men, but for an unknown reason some do not always do well. It may be that a particular patch of ground does not suit the variety, or the position is too exposed, so I say have them out and put in one of the varieties that is doing exceptionally well in your soil, or increase the kind for which you have the biggest demand.

I have been referring chiefly to the younger trees. As regards the older ones it is with them not so much a question of the amount of fruit they are bearing, but the saleable quality, and whether they had been neglected before you took over the orchard, and, consequently, badly affected with canker or fungoid diseases.

If not in this latter condition it is often well worth while to consider the advisability of heading down the trees and top grafting with a variety that always has a good sale.

This operation will usually give a crop much sooner than replanting, and, properly treated, will give a little fruit in the third year after grafting. The chief danger to look out for is risk of the entrance of fungus diseases into the wounds caused in the cutting back of large branches.

A little local advice would probably come in useful as to the most desirable varieties to use, but in most cases it is best to employ for the grafting a stronger growing variety than the stock we are working upon. Bramley Seedlings, with its vigorous growth, succeeds well for this work, and has been found to be successful for top grafting on to Cox's Orange Pippins, which were not doing well. Again, Early Victoria (Emneth Early) to James Grieve would make another good combination, and Blenheim Orange was another that did well when grafted on to Norfolk Beauty.

I spoke of a slight risk of disease attacking trees that were top grafted, and I remember hearing that the use of Newton Wonder for the scion was not a success, because, although strong growing, this variety seems more liable to be attacked by the silver leaf fungus. I add this remark as the experiences of others are always useful to know and to pass on.

REPLIES TO QUERIES *re* POLINATION AND HEDGES (A. C.).

The apples you mention should help each other, as the chief point to bear in mind is that varieties selected to be planted together would be in flower at the same time. Blenheim, James Grieve, Lane's Prince Albert, and Bramley's Seedling are within a day or so of each other in blossoming. I do not know Handwell Souring. If this is a mid-season variety, it should be all right with the others.

Victoria and Monarch plums are self fertile, but even self fertile varieties are generally the better for cross-polination. Jefferson's Gage is self sterile, so the Victoria should be a suitable companion.

HEDGE. Your suggestion of Myrobalan Plum is very suitable for this, and often used. Also it is quick growing, but when trimmed up to keep a solid hedge, fails to give a crop. The same remark applies to using Nut bushes. Thuja lobbii and macrocarpa become expensive if there is much wanted, but it is exceedingly nice for short hedges or background purposes. Neither are considered poisonous to poultry. The Macrocarpa is the quicker growing of the two. I really think the Quick (white thorn) or Privet is as good as anything for cheapness, and the last-named soon gives a screen—two important points to be considered.

EDITORIAL.—Continued.

Very enjoyable was the N.U.P.S. dinner at the Trocadero. "No speeches" was the rule, but the opportunity of congratulating Mrs. Rawson on her approaching marriage with Dr. Rowe, could not be lost.

In a neat little speech Mr. Leslie Williams alluded to Mrs. Rawson's popularity, and the great services she had rendered, not only to the N.U.P.S., but to the whole industry. He asked all present to join him in heartily congratulating her, and wishing her every happiness. It was our privilege to be asked to support the vote, and we did so with the greatest pleasure, in the name of the National Poultry Council and the S.P.B.A. To the majority of our members Mrs. Rawson is well-known, and we are sure everyone of them will join in congratulating her, and wishing her happiness. On rising to respond she received a great ovation, and her graceful little speech charmed everybody. Dr. Lowe, who also responded, was warmly welcomed.

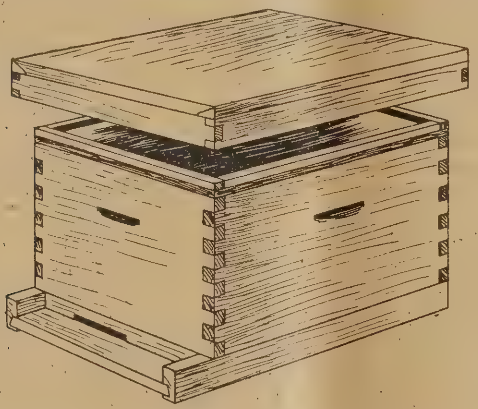
Bees.

By E. W. D. MADOC.

HIVES.

There is too great a tendency on the part of amateur bee-keepers to over-estimate the importance of the part played by the hive in the production of the honey crop.

With any hive capable of more or less indefinite contraction or expansion, and most hives fall under this category, it is possible to produce good crops of honey. The most important point in a hive lies in its suitability or otherwise for rapid and widely variable manipulation of the stocks by the bee-keeper; with this end in view it is necessary to have every hive interchangeable, and the hives should be of simple construction and contain the least number of different parts. This ideal of absolute interchangeability is seldom realised by most sideline bee-keepers because they are always buying some different type of hive to their last in the endless quest for the perfect hive which is going to double the honey crop. The first hive should be chosen with care, with special reference to ease of manipulation and elimination of unnecessary parts, and such points as a waterproof roof, reasonable thickness of side walls of hive and similar obvious points should be noted. When the type of hive has once been chosen, it is a mistake to change unless it is found that the hive possesses some very marked and important inferiority to some other hive. Such "improvements" as "non-swarming" hives and similar wonders should be viewed with much suspicion. It is essential that a hive shall be of first-class workmanship and made to fine limits of accuracy; for this reason it is always preferable to buy hives from a regular manufacturer of bee appliances who understands the requirements, instead of getting the local joiner to make a hive. The latter will probably be a bit cheaper, but he will almost invariably get something wrong even when given a hive to copy. Perhaps the best way for anyone handy with tools is to buy the wood ready cut out for the hive parts, nailing it up and painting it during their spare time.



The best type of nail for this work is what is known as the cement coated nail this is a thin wire nail dipped in resin, which makes it adhere to the wood very firmly in much the same way as a really rusty nail holds; these nails are more expensive per pound, but there are more nails for a given weight than with the ordinary wire nails, and a better grip is obtained with a smaller number of nails, so that they come cheaper in the end. Incidentally these nails are very useful for nearly every purpose for which the ordinary wire nail is used, the only occasion on which they are really objectionable is when it becomes necessary to take anything to pieces which has been made up with these nails.

When a hive is being made up at home it is a good plan to paint the joints before assembly, as this treatment lengthens the life of the hive considerably. At least four coats of paint should be applied. Many people only put on one or two and repaint every year or so, but it is much less trouble and quite as satisfactory to apply several coats at one period every three or four years.

CHLORINE GAS AND ROUP.

To the Editor of "Eggs."

Dear Sir,—I should like to amplify some of the remarks made by Mr. Brain in "Eggs" of October 8th concerning the use of chlorine gas in the cure and prevention of roup.

May I first try to clear up his somewhat obscure remarks on the generation of this gas in paragraph six of his article?

Chlorine gas can be made by pouring hydro-chloric acid (or spirits of salts) upon bleaching powder. It can also be made conveniently by pouring *diluted* hydrochloric acid (one measure of acid and one of water mixed) upon potassium permanganate crystals. Both these operations should be done in *non-metallic* vessels. A word of warning to the operator is here necessary to avoid breathing the gas, which is very unpleasant, and can give all the symptoms of an exceedingly bad cold with sore throat.

Should this matter catch the eye of Capt. Leeney, I should like to ask his opinion whether the use of chlorine or bromine water is likely to be any good as a medicated water? Though the preparation of solutions of these substances is not a matter for the average poultry-keeper.

Yours faithfully,
HARRY ELLISON.

West Crosshill, East Kilbride, Lanarkshire.
3rd October, 1924.

Dear Sir,—I would like to add my appreciation of "Eggs." It is the finest publication in the industry.

Yours truly,
(Signed) (Mrs.) M. GILMOUR.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 24th OCTOBER, 1924.

GRAIN AND FEEDING STUFFS.—There is no change this week in quotations for English wheat, which average 13s. 1d. per cwt. Demand is good for samples in fair condition, those fit for seed meeting an especially strong demand and making in some cases over 15s. per cwt. Malting barley is more plentiful, and even finest samples are more difficult to dispose of, while generally prices are distinctly easier, averaging 16s. 9d. per cwt. against 17s. 7d. last week; feeding samples, however, although hardly so active a trade as recently, show no quotable alteration. Oats continue in steady request and prices have a firmer tendency, white oats averaging 10s. 11d. per cwt.

Imported wheat has met a somewhat irregular trade during the week, and on the whole there is not much alteration in prices as compared with the previous week. Imported barley meets a less active trade and prices are lower, while imported oats are fairly steady. Maize is in good supply and quiet demand, but prices have again advanced slightly, Argentine averaging 11s. 3d. per cwt., or 1d. more than last week.

Milling offals and meals are firmly held, and prices, where altered, are higher. Oil cakes have also advanced further, but demand is only moderate owing to the relatively high prices now ruling.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s.; Hull, £8 17s.; Liverpool, £9 5s.; London, £9. Broad Bran: Hull, £10 7s.; London, £10. Middlings:—Fine (Imported): London, £11 12s.; Coarse (British): Bristol, £11 2s.; Hull, £11 5s.; Liverpool, £11 10s.; London, £10 5s. Pollards (Imported): Bristol, £9 10s.; Hull, £9; Liverpool, £9 7s.; London, £9 15s. Rice Bran: Bristol, £9 7s.; Liverpool, £9 2s. MEAL.—Barley Meal: Bristol, £14 5s.; Hull, £14; London, £14 5s. Maize Meal: Bristol, £12 15s.; Hull, £12 5s.; Liverpool, £12 10s.; London, £12 10s. Maize Germ Meal: Bristol, £12 10s.; Hull, £12 5s.; London, £12 5s. Maize Gluten Feed: Bristol, £12 5s.; London, £11 15s.

EGGS AND DEAD POULTRY.

All best descriptions of eggs are in light supply and realise rather more money, but good quantities of secondary grades are available. Little change is noticeable in the trade for dead poultry, and last week's prices are generally maintained, with best qualities tending upwards in London.

Week-end Prices—Eggs (per 120): British: 28s., 25s.; Irish: 24s., 23s.; Danish: 25s., 23s.; Dutch: 27s. 6d., 24s.; Russian: 16s. 6d., 14s.; Belgian: 23s., 21s. 6d.; Italian: 22s., 19s.; Lithuanian: 18s., 15s. Dead Poultry (per lb.): Fowls—Surrey: 1s. 8d., 1s. 5d.; Irish, 1s. 2d., 11d.; Others: 1s. 5d., 1s. 1d. Ducks: 1s. 2d.; 11d. Geese: 1s. 3d.; 10d. Turkeys: 1s. 10d., 1s. 9d.

EGGS.

Per Doz.—Ashford: First, 3s 3d; Second, 3s 2d. Birmingham: First, 2s 9½d; Second, 2s 7½d. Bridgwater: First, 3s 2d; Second, 3s 0½d. Carlisle: First, 3s 2d. Chelmsford: First, 3s 3d; Second, 3s 1½d. Denbigh: First, 3s 2d; Second, 3s 0d. Derby: First, 3s 0d. Dorchester: First, 3s 0d. Exeter: First, 2s 11d. Hereford: First, 2s 10d. Ipswich: First, 3s 0d; Second, 2s 9d. King's Lynn: First, 3s 0d; Second, 2s 9d. Lincoln: First, 3s 0d. Llandilo: First, 3s 0d. Montgomery: First, 3s 0d. Newport (Mon.): First, 3s 3d; Second, 3s 0d. Norwich: First, 3s 0d. Oswestry: First, 3s 2d; Second, 3s 1d. Penzance: First, 2s 9d; Second, 2s 8d. St. Ives (Hunts): First, 2s 11½d; Second, 2s 10½d. Salisbury: First, 3s 2½d; Second, 2s 9d. Shrewsbury: First, 3s 6d; Second, 3s 3d. Skipton: First, 2s 9d. Truro: First, 2s 7d. York: First, 3s 2d; Second, 3s 0d.

FOWLS.

Per lb.—Birmingham: First, 1s 2d; Second, 9d. Derby: First, *5s 3d; Second, *3s 6d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 7d; Second, 1s 5d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *4s 9d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d: Second, 10d. Derby: First, *5s 6d; Second, *4s 6d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 7d; Second, 1s 5d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *5s 6d; Second, *4s 0d.

* Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, October 29th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000-hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS,	per line, extra		9d.
DAY-OLD CHICKS	„	„	1s.
DAY-OLD CHICKS	„	„	1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3	insertions	for the	price of	2
6	„	„	„	4
9	„	„	„	6
13	„	„	„	8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office

FIRST POST FRIDAYS

for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS AND CHICKS.

FOR SALE.

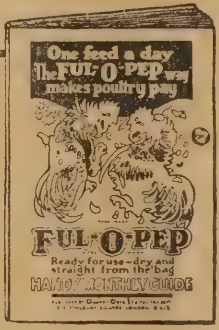
Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faveroles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

READY NOW.

Light Sussex, Day-Old Chicks; price, £1 1s. per dozen.—Moore, St. Edmund's Lane, Bures, Suffolk.

ALEX. J. BELL, M.S.P.B.A., U.D.C., Longwick, Princes Risborough, Bucks, is now booking Sittings and Chicks from his Pedigree Pens of R.I. Reds, White Leghorns, Indian Runners, and Khaki-Campbells. List free. Satisfaction insisted on.

This free book will help you



You get troubles and difficulties—we all do—but this book tells you what to do, or to guard against, each month, and so prevent many of these troubles.

The Ful-O-Pep Handy Monthly Guide contains many valuable hints, including the following:—

"How to select the layers."
"Feeding for winter eggs."
"Artificial lighting."
"Selection of hens for breeding."
"Rearing chicks on one feed a day."
"Speeding up the moult."
"What to do when your hens refuse to lay."
"How to set a broody hen."
"Changing from Wet to Dry Mash."
"The Ful-O-Pep way explained."

Whether you have 6 or 6000 birds this book will be of great value to you and assure bigger profit.

Put your name and address on a postcard and send it to us to-day. You will get the book by return—free.

Poultry Food Department—
Quaker Oats Ltd., 11-12, Finsbury Sq., London, E.C.2

FUL-O-PEP TRADE MARK
LAYING MASH
NO MIXING: NO HEATING WATER: NO TROUBLE

EGGS AND CHICKS.

FOR SALE.

SPRING CHICKS!
SPRING CHICKS!

Thousands of Fertile Eggs available fro
large-framed Light Sussex; 50s., 100; £11 5s
500; £21 5s., 1,000. Assorted Sussex, R.
Red, Buff Orp., White Wyandotte, an
Barred Rock Eggs; 45s., 100; £10, 500; £1
15s., 1,000. Unfertiles not replaced; 85 pe
cent. fertility guaranteed. Order now be
fore the rush. Eggs ready now, or can b
despatched on dates specified, if booked i
time. Day-Old Chickens available fro
January. We have a flock of nearly 5,00
hardy, healthy birds. Send for Illustrate
Catalogue, free.

EASTMAN BROS.,
SUFFOLK POULTRY FARM,
HADLEIGH.

PULLETS.

FOR SALE.

**Black Leghorns. Needing the room hav
about 30 Black Leghorn Hens, 10s. 6d. each
and some 1924 Cockerels, 10s. 6d. each, fo
Sale.—Innes, Brean Cottage, West Monk
ton, Taunton.**

**Exchequer Leghorn Pullets and Cockerel
for Sale, bred from 2nd Crystal Palac
Hen and Reserve, Crystal Palace and 1s
and Silver Medal Bath and West cock
Price 15s. and £1 1s. each.—Innes, Brea
Cottage, West Monkton, Taunton.**

**Rhode Island Whites, 1923 and 192
Pullets and Cockerels of this new and ex
cellent breed for Sale, bred from Winners
two 1sts and Silver Medal, Bath and
West, 2nd and 3rd Leicester, Birmingham
Crystal Palace, Reserve Olympia, H.O
Dairy. Prices, from £1 1s. each.—Innes
Brean Cottage, West Monkton Taunton.**

12s. 6d. each, February-March hatched
Simpson Barron White Wyandottes, Golden
Measure Reds, Bostock Smith's-Hunter
White Leghorns; Wilson strain, Indian
runners; 6s. each.—Allday, S.P.B.A., P.F.,
Cotehill, Carlisle.

Eighty Light Sussex Pullets, from Regis
tered Pen, and other trap-nested stock. All
sired by cockerels from high-record in
dividual hens. Prices very reasonable.—E
Mabel Scott, Leweston Manor Poultry Farm
Sherborne.

Pullets. I have still a few Pullets from my Best Breeding Pens for disposal. White and Black Leghorns, Wyandottes and Reds, prices from 12s. 6d. to £1. Also Breeding Pens and Cockerels. I am also offering some Houses, as new, and a few Incubators.—Rev. A. R. Runnels Moss, Shawell, near Rugby. See S.P.B.A. Breeders' Register.

WHITE BRESSE PULLETS.

March, 1924, hatched; Newman's strain direct; 12s. 6d. each.—Meadow End Poultry Farm, Cradley, Malvern.

506

1924 PULLETS.

WHITE WYANDOTTES. } (Trap-nested).
WHITE LEGHORNS.
R.I. REDS, LIGHT SUSSEX.
BARNEVELDERS.

Highest-class birds, reared on free range. Well-grown, large size; 15s. and one guinea each, carriage paid, on approval. Reduction for quantities. Pupils taken, all branches, Utility and Exhibition. Good accommodation.

HEATHLANDS POULTRY FARM,

Ottery St. Mary, Devon. Members of P.C., S.P.B.A., R.I.Red, W.W., and Barnevelder Clubs.

EGGS

THE OFFICIAL ORGAN OF THE

Scientific Poultry Breeders' Association

WEDNESDAY, NOVEMBER 5th, 1924.

Editorial.

"EAT MORE EGGS."

It cannot be denied, even by the most optimistic of us, that there is a very considerable drop in the profits derived from the sale of the commercial egg. For the past three years the margin has become smaller and smaller, the producer's anxieties have increased correspondingly, and as there is no present prospect of the cost of production falling, we must bestir ourselves, and endeavour to obtain better prices for our produce. We have no desire to alarm our readers. They are as fully aware of the seriousness of the position as we ourselves are, and are equally aware that weeping and wailing will not help matters, nor can we afford to wait for someone else to act—we must act ourselves, depend on ourselves, and fight for ourselves. We shall be weak, indeed, if we place our hopes in Government aid.

If we examine the situation, more particularly in relation to the cost of production, we look in vain for any prospect of reduction. Indeed, there is some reason to believe that costs will continue to rise. In foodstuffs, for example, the high price of wheat is due, in the main, not to bad harvests, but to other nations—Japan, for one, coming into the market. This increased demand naturally affects the price of other cereals, and we dare not look upon this as a temporary rise. It would be advisable to consider it as permanently affecting our industry, and take steps to meet it. Only this week we received a communication from an important firm of food merchants, informing us that there was likely to be a sharp rise in the price of a certain food, because of the demand from the continent. It is very obvious that we cannot demand an increased price for our eggs, because of the increased cost of production; cost of production does not determine the price realised—the laws of supply and demand regulate that.

At Salisbury, the National Poultry Council approved of the principle of a projected campaign to induce the public to consume more eggs. It is quite unnecessary to say that a greater consumption will mean a greater demand, and higher average prices. If any of our readers can devise a plan whereby the cost of production can be more effectively countered, we shall be pleased to hear from them. Producers of tomatoes, grapes, apples and bananas, have reaped the greatest possible benefit by a public campaign advertising their wares, and can we find any good reason why an "Eat More Eggs" campaign should not be equally successful? Which of these articles enumerated can compare in food value with the egg? Or what combination of them could do so? Is it not in itself a complete food? What food is richer in the vitamin fat soluble "A" than the egg? and in these days, when the greatest medical authorities are turning their attention to nutrition rather than to drugs, as a means of combating the ills of humanity, has not our opportunity arisen, and shall we let it pass?

We ask our readers to consider carefully the letter published below. We make no appeal to them to support the fund for the proposed campaign, but leave it to their judgment, foresight, and business acumen:—

> "Dear Sir,—Once again the assistance of the Poultry Press is asked for by the industry which it represents, and, notwithstanding, or shall we say because of, their generous support in the past, we feel sure there will be a real response to this.
>
> At the last meeting of the National Poultry Council the recommendation put forward by the "Eat More Eggs" Committee that the Poultry Press be asked to raise a Preliminary Fund, was carried unanimously.
>
> It would, perhaps, be as well if we explain the reason for this Fund. To carry out the suggested Publicity Scheme a minimum sum of £10,000 is required, and it is felt that at the present time there would be some difficulty in obtaining the whole of this from the poultry industry itself. Further, as the distributors of eggs, suppliers of foods, appliance manufacturers, and also the general public will benefit from such publicity, there is no doubt they will assist in raising the money required. To get into touch with them, however, necessitates considerable expenditure, and it is for this purpose that this Preliminary Fund is essential.
>
> The more money raised, in the first place, the greater and wider the appeal which can be made. The definite form of this cannot be decided upon until it is ascertained what sum is available. We are sure, however, that the appeal suggested will be responded to by all poultry-keepers according to their means, as everyone will materially benefit by the scheme.
>
> It is an astounding fact that comparatively few people realise that on the average price throughout the year, eggs form one of the cheapest foods obtainable.
>
> Furthermore, the methods adopted for cooking eggs in this country are extremely limited and

lacking in variety. It is towards remedying these two conditions that the suggested publicity campaign will be mainly directed. It will, by means of advertisements, posters, pamphlets, signed articles in the general press, and various other channels, enlighten the public on the value of eggs, and in such ways, increase the consumption.

These methods have been "tried out" with other foods, notably bananas, tomatoes, grapes, fish and apples, and have been found most successful. There is thus no doubt that they will be equally efficient in our case. Effectively conducted, the general public will benefit by this form of propaganda, the distributors, by the increased demand and turnover; the egg producers, by the more consistent prices, and the poultry breeder by the increased demands from those who will be attracted to the industry. Well-known medical authorities are ready to assist with articles on the exceedingly high food value of eggs, and eminent chefs have expressed their readiness to contribute recipes as to the best and most economical ways in which eggs can be utilised. Providing this Preliminary Fund can be raised, everything is ready to be put into operation. In the past poultry-keepers have spent money in advertising among themselves with the most satisfactory results. Let us now go a step further, and press home to the the general public, the food value of the British Egg. In doing so we shall not only help the nation, but also help ourselves. In asking the Poultry Press for its powerful support we feel that its Editors have but to open their columns to this appeal to ensure a hearty response from all their readers.

In concluding, may we say that pounds from those poultry-keepers in a large way, and shillings from those who have but a few birds, will bring a sufficient sum for the purpose we have in view.

Subscriptions can be sent to the Editor of this paper."

(Signed) TOM NEWMAN
(President of the National Poultry Council).
E. BOSTOCK SMITH
(Chairman, Increased Eggs and Poultry Consumption Committee, National Poultry Council).

SECOND MIDDLESEX COUNTY LAYING TEST.

Held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR TWELFTH MONTH.

Light Breeds (Single birds).—J. & A. Moore (B.L.), 220 eggs; Major Kingscote (Ancona), 202 eggs; J. A. Howarth (W.L.), 196 eggs; Roebuck and Illingworth (B.L.), 186 eggs; F. J. Betts (W.L.), 178 eggs; D. W. Gunston (W.L.), 155 eggs.

Heavy Breeds (Single birds).—Mrs. J. H. Drew (Buff Rock), 217 eggs; Mrs. M. Rogers (R.I.R.), 210 eggs; H. J. Veeger (L.S.), 205 eggs; A. Prince (W.W.), 203 eggs; W. Measures (R.I.R.), 193 eggs; E. Bland (R.I.R.), 192 eggs.

Light Breeds (Pairs).—W. H. Hawkes (W.L.), 317 eggs; Mrs. Crookes (W.L.), 285 eggs; Davey & Sons (B.L.), 279 eggs; V. J. Hitchings (W.L.), 277 eggs; E. & W. A. Franey (W.L.), 316 eggs; L. C. Turnill (B. Min.), 270 eggs.

Heavy Breeds (Pairs).—A. D. Prince (R.I.R.), 399 eggs; P. E. White (Buff Rocks), 390 eggs; Major G. T. Williams (R.I.R.), 362 eggs; W. Claughton Douglas (W.W.), 363 eggs; E. Bland (W.W.), 351 eggs; W. Measures (R.I.R.), 340 eggs.

H. Winch wins the Cross Section with 170 eggs.

(Signed) LILIAN SMITH, Manageress.

Modern Poultry Feeding.

By TOM NEWMAN.

THE CALCIUM SALTS.

If I return once again to this subject, it is because it seems to me of such vast importance in poultry nutrition, and we are coming to that period of the year, when, on account of the scarcity of green food, there is too often a great deficiency of these salts in the ration, not only of the laying hen, but with the breeding stock, with the result that we are able to trace to this deficiency one of the most prolific causes of dead-in-shell, ricketty chicks, and the crooked breast bone, of which we have heard so much of late.

At the Harper-Adams' Conference in 1922 I said in my paper:—

> "Ours is a problem of not only production, but reproduction, and we cannot afford to lose sight of the fact that the heavy producer will be compelled to draw on her bodily reserves for any deficiency in the diet, more particularly will this be the case as regards calcium requirement."

* * * * *

> "Now in the heavy producer the elimination of calcium is undoubtedly greater than the intake, and, therefore, the embryo suffers in the first place. It is unable to obtain sufficient to form bone, which probably accounts for a high percentage of dead-in-shell; then we have the fact that high fecundity is correlated with early maturity. If we get pullets laying from 4½ to 5 months old, the elimination of calcium must be greater than the intake, and we cannot expect them to form bone. It is up to utility judges to say whether or no this craze for fine bone is not being carried too far, and whether from such a foundation we can hope to build up vigorous stock."

I then went on to suggest that these salts could be best supplied by a mixture of bone meal, 60 parts; crushed oyster, 20 parts; common salt, 20 parts; 3ozs. of this mixture to every 10lbs. of mash.

It is really in relation to the breeding and growing stock that we require to give most attention to the great need of calcium salts. Let us think of it first in reference to the breeders. It has been proved beyond dispute that the production of milk in cows and goats causes a heavy drain upon the calcium of the skeleton unless the amount of calcium contained in the food be very abundant. Can we not see here that the same condition must arise with our poultry, especially the heavy producer? Shall we not understand that if in mammalia there is need of abundance of calcium during pregnancy, when the foetus is storing it at a rapid rate, then the same condition must arise with the heavy producer and her egg. Is it not easy to see that the tendency to soft bone, which is so often evident in the progeny of our heavy producers, is due to the deficiency of calcium?

Calcium constitutes a larger proportion of the body weight than does any other of the inorganic elements. It is very unevenly distributed over the body, over 99 per cent. of the total amount being in the bones. The calcium salts are also necessary to the coagulation of the blood, and to the normal action of the heart muscle.

Mr. F. W. Wait has drawn my attention to an rticle which appears in the current issue of the "American Poultry Journal," entitled "Feeding Minerals." Quoting Dr. Mitchell, of the Wisconsin College of Agriculture, the writer says:—

> "Mineral matter is just as important in stock feeding as is a roper supply of protein. This is often proved by the fact that an nimal will starve sooner if fed plenty of food, but food which is ree from mineral matter, than he will if given no food at all."

Writing on this subject in "Eggs," March 8th, 922, I mentioned experiments which showed that dogs which had been fed on foods deprived of the mineral alts, lived but 25-35 days, while those which were wholly deprived of food lived from 40 to 60 days. It s not a question of the former "starving sooner." Their death was due to the fact that when food is fed, which has been deprived of its salts, poisons are pro-uced by combustion; and I added: "The proteins and ther constituents of foods have no value except for he effect exerted on them by the mineral salts."

But the gist of this paper 's the calcium salts. Some weeks ago Mr. Wait criticised in these columns the emarks of a speaker at some conference who had said hat bone meal was of no value to the fowl, as very ittle of it was assimilated, it being voided in its riginal condition. There is little doubt but that the ecturer was mistaken. Dr. Mitchell recommends as a ource of the calcium salts, and he definitely states: "*A large proportion of the intake being retained by he bird.*"

Of the value of bone meal there can be no doubt. n certain conditions, and in certain environment, its se is a absolute necessity. There is very little doubt hat it could be well utilised by breeding stock, and hat in very many cases it would result in better atchability and healthier and more vigorous chicks. f green food were scarce, and clover or alfalfa meal ot used, any ration made of any of the following oods, in whatever combination they were used, would how a great deficiency of the important calcium salts. Meat meal, blood meal, middlings, bran, maize meal, round oats, barley meal, biscuit meal, potatoes, all oot vegetables, except onions, all the cereal grains. Whatever combination you made of these, and if you orked out the albuminoid ratio in the proper proportion, or calculated the food units, and found it particularly high, your feeding would not give good results nless you found some means of supplying the important calcium salts, if we omit the green foods, and over, alfalfa, etc.; the best source is bone meal, for eeding and growing stock you could use 5 per cent. the mash. Of course, green bone could be used to place other animal protein, and the results would be ite satisfactory. If there is any suspicion of a eficiency, it would be well to use meat and bone meal place of pure meat meal.

Foods which are fairly well supplied with calcium lts are:—Milk, which accounts to a great extent for e wonderful results obtained in last year's Welling- m experiments; fish meal, alfalfa and clover meal; e Legumens, pea and bean meal, are fairly well , and dried brewers' grains and malt culms are out equal. Of the oily seeds, linseed and hemp seed

(Continued at Foot of Next Column.)

are well supplied. The tops of Jerusalem artichokes, swede greens, carrot tops, and those of the turnip are also well off in this respect.

In any case, during the winter months, I would strongly advise that the ration of the breeders be supplemented by bone meal, and that during the growing period it should be added to the chicks' rations, except where they are on free range, and there is an abundant supply of fresh green food. Three to five pounds of bone meal is advised to 100lbs. of mash. Growing stock require four times the quantity of salts needed by adult stock.

Limestone grit owes its great superiority to every other form of grit to the fact that it is rich in lime.

The following is an extract from the article mentioned:—

> "It already begins to appear that minerals and vitamins are mixed up, and late experimental work is showing that some of the efficaciousness of milk is due to the lime or calcium which it contains as well as to its elusive vitamin content."

This is perfectly true. The two things in Poultry Nutrition which most demand our attention are the mineral salts, particularly the calcium salts, and good protein.

Health by Ventilation.

By C. WINTHROPE SOMERVILLE.

(Continued.)

I use these small houses for rearing chicks from six weeks to three months, but the floor is made of small mesh wire netting and well off the ground. Cover the netting with hay and you get your induced current from the bottom to the apex very successfully by providing an aperture at the top of each end. I have found them a great prevention against smothering. Give chicks the least opportunity, and they will pile up in a corner, causing the under ones to suffocate; with two or three inches of hay on the floor and the tendency to an induced current of air by the particular design of the structure, the underneath chicks stand a better chance of getting sufficient oxygen to support life till a re-shuffle occurs. A floor area of 64 square feet I have found sufficient to accommodate one hundred birds three months old. I know of nothing cheaper in construction, whatever material is used, and they have the tremendous advantage of great stability.

In conclusion, I would ask to be absolved from any suggestion on my part that what I have set out here is the last or best word on poultry housing design. It is not. The last and best words are never said, otherwise stagnation would result. But I will say that a considerable amount of deliberate thought and painstaking experiment on scientific lines has been made. And the result has been so far satisfactory, that in the brooder period I have reduced mortality from 15 to 1 per cent., and the total losses up to laying stage have not exceeded 3 per cent. this year. In the adult " Apex " house there has not been a single casualty from any cause with a 120 birds in one year's working.

A FEW SUPPLEMENTARY NOTES.

Although not strictly within the scope of this article, I venture to mention a few points in poultry manipulation in which I have departed from prevailing text-book recommendations with beneficial results.

Droppings Boards.—Wooden droppings boards are a curse. I have used sand, earth, litter, etc., but nothing will prevent the wood absorbing the moisture from the droppings. And where double perches are in use the nuisance is aggravated by the birds tramping on the droppings. The danger of wire netting stretched over a wide board I have found to be such as to make its use inadvisable. The remedy is in flat galvanised iron sheeting. All moisture evaporates, and the droppings are easily and cleanly removed by scraping or sweeping, and there is an almost complete absence of offensive odour. In large-scale work an endless belt of sheeting could be employed for catching, and the daily removal of the droppings.

Disinfectants.—I prefer pure phenol to any other form of disinfectant. Phenol is pure carbolic acid, and if applied in the strength prescribed for gargling it is harmless to animal life, but destroys the lower forms of insect life. A solution of one part in two hundred of water is the usual strength, and makes a very efficient and very cheap disinfectant. It is very safe to use in brooders. By means of a watering can or syringe I apply it to all wooden dropping boards after cleaning.

For disinfecting an adult house the simplest and most effective method I have tried is that of burning flowers of sulphur. Half a pound placed in a **metal** tray on a flat stone in a house seven feet square has effectually prevented the presence of any form of chicken insect I have ever seen or heard of.

The operation takes about half an hour, and the birds are, of course, excluded from the houses and the doors closed. I do it every three months, and in the whole of my plant and birds I have never yet seen fleas, lice, ticks or red mite. Brooders undergo treatment before every new hatch. Fumes of sulphur dioxide will penetrate where liquid disinfectant will not.

A Duck House.—Quoting from a text book on poultry it is said that " any kind of convenient outhouse or shed may be used as a duck house, but it should have either a concrete or brick floor so that it may be swilled out occasionally." In the next paragraph it states that " it is all important that the duck bed be perfectly dry."

I developed a mania for ducks. Before installing them I visited several establishments, where ducks were made a speciality, to inspect the housing systems. Concrete or earth floors covere with a thin layer of straw seemed to be the usua thing, so also did the dirty, filthy, sloppy condition of the bed.

As a trial I used an earth floor and found tha to provide a " **dry** bed " for fifty ducks it wa costing me nearly five shillings a week for stra litter and the trouble of changing the bed twice week. I found, also, that a soiled, undiscovere egg a few days old had a distinctly tainted flavour.

Since a dry bed seemed to be the important feature I reconstructed my house to that end by making a floor of tightly-stretched wire netting of three-quarter inch mesh and raised the whole house tw feet above the ground. On the floor I laid si inches of straw. The anticipated result wa actually secured.

Owing to the current of air under the floor fou or five inches of the straw from the bottom upward was **always** dust dry; the top inch or so after week could be peeled, or rolled off like a mattres and replaced with the same quantity of clean straw Most of the eggs were buried in nests and wer practically unsoiled.

One never lost an egg by treading on it, an the birds were enabled to keep themselves beautifully clean.

This system has already been adopted by severa duck-keepers who have inspected it, and foun very satisfactory.

SUSSEX POULTRY CLUB.

A committee meeting was held at the Dairy Show at th " Feathered World " Stand, by kind permission of the Proprietors, on Wednesday, October 22nd, at 12.15 p.m. Present Mr. J. Russel, President, in the chair; Messrs. Amey, Falkenstein, Cree, Rogers, Horton Jefferson, Goode, Grant, T. R Robinson, and the Secretary. The minutes of the last meetin were read, confirmed and signed.

Mr. Horton Jefferson undertook to judge the entrants fo the Laying Trials at Harper-Adams, and Mr. Watson was aske to do the same for the Bentley Test.

It was arranged that a certificate should be designed an printed for the awards in the Laying Trials. It was arrange to offer four money specials for the Bath and West Show a Maidstone, in 1925, if a sufficient number of classes were put on

Mr. Amey withdrew his previous resolution to be proposed a the Annual General Meeting as to the alteration of the colou standard in the Brown variety. It was arranged to give th usual specials for the Olympia Show.

The Rev. Harold Mayall asked the committee to accept hi resignation as secretary owing to the extreme pressure of othe work.

The following new members were elected:—Sir John Leigh J. S. Fenwick, Mrs. J. G. Morris, H. H. Boyden, Miss E Angas, F. Beard, W. Poupart, Rupert Reed, Jonathan Hopkins A. W. H. Loveless.

Avona, Bramhall, Cheshire.
23rd Sept., 1924.

Dear Sir,—I find " Eggs " a splendid paper for advertisements. I have always been most successful with my advertisements in " Eggs." I advertise regularly.

Yours faithfully,
(Signed) CORA PARISH.

Answers to Queries.

By the EDITOR.

DUCKS.

ev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

odies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

eaders are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

eplies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

LL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

J. S. W. (Kellbrook). The condition of the two athers you sent is due to a parasite, which is located the root of the feather, and which appears to live the secretions which nourish it. You should pull ut all such feathers, and dress the part with a two r cent. solution of Izal, soaking it well into the kin.

W. E. (Erith). The incubator you mention is so nstructed that no provision is made for moisture, and ne is necessary. It would, however, be a good plan—rticularly in very dry, cold weather, or if the temrature of your incubator room is below 50 degrees—place a tray of moss litter, about 6in. deep, under e incubator, and keep this well moistened. The ncrete floor in the pigstys will be quite all right if u cover them well with litter. Of course, I am suming that the stys themselves are suitable for the rpose.

" Midlander " (Knowle).—In reply to your letter. I rtainly do not consider the formula which you give well-balanced, and it is unnecessarily expensive. A gh percentage of Sussex ground oats would make it fficult to " bind." The following would be better. s I imagine that many of your members are not able supply plenty of fresh green food, it will be necesry to use alfalfa meal):—10lbs. alfalfa meal, 10 an, 45 fine white middlings, 10 S.G.O., 15 maize eal, and 10 meat and bone meal or fish meal.

" Nosey Parker "(Linburn). I do not like either your samples of meat meal. No. 1 contains a good al of the hide, and a nice addition of the hair to it, and the other samples are very oily and smelly. I could not advise you to use either. If you cannot detect the smell on sample No. 2, your nom-de-plume is not appropriate.

A. F. W. (Preston). Sample No. 5, meat and bone meal, is a fair sample; a little on the coarse side. The sample of biscuit meal, No. 3, with the addition of meat meal, is a very good one. I prefer it to No. 1. No. 2 dry chick feed is a very nice mixture. I prefer this to No. 4, which contains both dari and lentils, neither of which are very suitable for young chicks, owing to their being very difficult to digest. The mixed corn is quite a good sample. The laying meal appears fairly satisfactory, although the thirds used are very coarse; but the price, 26s. cwt., is absolutely ridiculous; it is not worth more than 16s. The mixed corn feed, too, at 26s. cwt. for laying hens, is a terrific price. If you are going to make a start at poultry-keeping in March, you must learn to feed more cheaply than this. I have been going through the prices of the list of food you sent me. No. 1, biscuit and bone meal at 35s. cwt., is an enormous price; No. 1, dry chick feed at 30s., is ridiculous. This should be at least 12s. cwt. less. No. 3, biscuit and meat meal at 35s. cwt., is also ridiculous—a price which you cannot afford to pay. No. 4, dry chick feed at 25s. 6d., is worth about 14s. You could buy a very good meat and bone meal at 20s., so do not be induced to pay 33s. 6d., and you should not pay more than 16s. for a laying meal. My dear sir, you must learn to buy better than this, if you hope your poultry farm to be profitable.

R. B. B. (Gunnislake). The soya bean meal is a very good sample, and the price fair. The Sussex ground oats!—surely this is a joke. I have never seen anything like it described as "Sussex ground oats" before. It is very poor quality; they contain a good deal of the husk, and are absolutely unsuitable for poultry feeding. It is really only a low-grade crushed oat. The barley meal is a good sample and the price fair. The maize meal is also good, and the price about right. The sharps are very inferior, containing a high percentage of ground over bran, and are dear at the money; the bran is quite a good sample. The wheat at 15s. cwt. is rather dear, but good. The meat meal is a good sample, and good value. Just slightly alter your feeding; make it:—2lbs. bran, 4lbs. sharps (these must be fine white middlings, and not the wretched samples you are using); one each maize meal and barley meal, half soya bean meal and half meat meal. With regard to the "Fireless brooder." That which you name is the best on the market, but success with fireless brooders always depends on the individual, and you must bear that in mind. Yes, the incubator is a very good one, and quite easy to run. You could obtain a discount if you purchased it through the Association.

" Novice " (Ardrossan). We are very pleased to receive your highest appreciation of our journal. In answer to your first question, the house will accommodate fourteen birds. I do not think you are wise in changing from wet mash to dry at this time of the year. However, the best way to do so would be to have the dry mash always before them, continue feeding the wet, gradually reducing the amount each day until they can do without it. I gave what I consider the best dry mash in "Eggs" only a month ago, which can be used either as a wet or dry mash, and I see you became a reader in June last. However, here it is again: One pound bran, one alfalfa meal, four fine white middlings, one maize meal or barley meal, one S.G.O. or biscuit meal, half dried yeast, and half fish meal or meat and bone meal. As the grain feed, give two parts kibbled maize, one small red wheat, and one oats. In answer to your fourth question: You cannot fatten cockerels for "Christmas pot" on dry mash satisfactorily. You had better use a cooked one if you are attempting it. The best would be: Two parts middlings, one barley meal, one S.G.O., half maize meal and quarter meat meal. You could mix this with sour skim milk, which would help considerably, and would increase the birds' appetites, but in that case the meat should be omitted. This mash should be given twice daily, as much as they will clear up in twenty minutes, and anything remaining should be removed. In addition a third feed of either boiled rice or wheat would help. (5) No, it would certainly not be advisable to put the June chicks among the hens now. (6) The length of time a hen is affected by the moult differs with individuals; three months generally. I do not care to criticise the formulas of others, so you must excuse me in that respect. If the results are satisfactory, what do you want more? The dry mash does not materially differ from the one I have given you.

T. A. W. (Oadby). Both the mashes you give should give satisfactory results. I do not see the advantage of adding biscuit dust with No. 2. This is rather expensive feeding, and the same result would be obtained by increasing the quantity of your Sussex ground oats or maize meal. In these days one must feed economically, and feeding dry biscuit dust is not a paying proposition. Your formulas are all right, and you must learn to adjust them to the immediate needs of the birds. It will possibly be necessary to increase the quantity of carbo-hydrates a little later on. That you must judge by the condition of your stock.

"29" (Bromsgrove). It will depend upon the health and vigour of the cockerel as to how many seasons you can use him. If he is a really good bird you could use him as long as he will breed, reducing the number of hens to which you mate him each year. (2) You must test your capsule, and see whether it will be necessary to purchase a new one. As you only had it last year, if it was perfect then, there seems no reason why it should be necessary. I do not quite understand your third question. I do not like attempting to rear chicks even in a cold brooder in a well-lighted stable. It will be better if the brooder is outside. The hover you mention is quite satisfactory.

R. H. W. (Wirewood). Yes, I think you can run the two vigorous March-hatched Wyandotte cockerels with twenty-four hens; but it is safer to run three, because if these two fight one may be such an under-dog that he will not be able to fertilise the eggs. However, as you can give them half an acre of grass land during the breeding season, it should be all right. Please do not write in blue pencil on blue paper again, as it is so difficult to decipher.

A. J. (Chester). I do not think that you can possibly make the wooden hut into a very satisfactory incubator house, particularly as it is a slated roof, as the temperature would be too variable. Perhaps you could overcome that by lining it. In any case you can only use one incubator, and that would have to be the 150-egg size, No. 5, as you would not have room for more.

A. L. S. M. (France). It is very difficult to advise you as to your feeding, as there is no possible substitute for ground oats. Can you obtain buckwheat meal? You would have to be careful to see that it did not contain too much of the husk. In that event you could use:—Two parts bran, four middlings, one maize meal, one buckwheat meal, and one of fish meal or meat meal. Lucerne you could replace for one part of the bran if you are short of green food, or even if it is reasonably cheap, and barley meal would make a change for maize meal occasionally. Sorry I cannot help you better than this, unless you send me samples of the foods you are using.

POST-MORTEMS.

J. W. The post-mortem examination of the pullet showed the cause to be amyloid degeneration of the liver. This condition may be attributed to too heavy feeding, with insufficient exercise, but often it is impossible to assign a cause. There is no effective treatment known, once the degenerative process has commenced, but the lowering of the ration, especially its maize component and the administration of salines over a period of a week or so, may act as a means of prevention.

A. P. I was absent all last week inspecting the entrants to the National Laying Test at Bentley and have only now reached your correspondence. The insistence on a fee of 5s. for letters is more a deterrent to correspondence than a reward for the work done, as there are many people who suppose us to be as leisured as themselves, and ask endless questions we have no time to answer. (1) Yes, the cockerel is himself contagious, and the chief means of spreading the disease. (2) How long isolated? Until the secretions are perfectly healthy, which may be two months or even more. (3) Yes, he will be ultimately fit, but the general experience is that the malady may last in chronic form and may be revived in the acute by sexual excitement. If possible he should be counted out, and another bird used. We can quite understand how this bird's services are specially desired, but advise you to employ another as being the most prudent course to adopt.

J. G. M. The W. Wyandotte hen was suffering from both diphtheritic roup and bird pox. Both these are highly infectious, and this bird's immediate associates should be strictly isolated from rest of the flock. Give the entire flock drinking water, in which has been dissolved one dram of copper sulphate to the gallon, and continue this for two weeks at least. To treat the affected birds open up swellings on head with a sharp knife and paint the wound with tincture of iodine. Examine the mouths and throats and scrape off any yellow patches, and swab the raw surface with the iodine. In addition to these measures, dip each bird's head, holding the mouth open, into the copper sulphate solution, keeping it under for twenty seconds. There should be a very scrupulous cleaning up and disinfection of everything that the diseased birds come in contact with, and the runs should be heavily limed and exposed to the weather before further use by healthy birds.

E. S. A. This was a case of apoplexy of the ovarium and peritonitis from escape of a previous yolk. She was a beautiful bird and the victim of circumstances. Maize occurs twice in your ration, and the fish meal is more than enough. Perhaps you will be satisfied to know that she was free from any infectious disease, and that depletion by fasting and a few twenty grain doses of sulphate of sodium given in the morning food should reduce the tendency to further losses from this cause. The corn feed should be given in the morning, and so scattered as to necessitate exercise in finding it.

H. J. L. W. The post-mortem examination of the pullet showed the cause to be peritonitis, due to the mortification of a yolk on the stalk. The stalk of this yolk had by some means become twisted up three complete turns, thus cutting off the blood supply to the yolk, death and decomposition being the sequels.

A. T. We have examined the egg and find under the microscope that it is not a foreign body but an apoplectic condition of the yolk before entering the duct and receiving the additions of albumen in its passage downwards. Some of the blood had escaped, and the clot had undergone changes due to boiling. The long streak you may have observed was a vessel filled with coagulated blood. These conditions lead us to attribute the trouble to over-stimulation by rich foods, and the remedy is depletion by a day of fasting and morning doses of saline, such as twenty grains of sulphate of sodium.

K. The ovarium was diseased, several of the yolks having died on the stalk, then broken, and set up peritonitis The condition was fair, and there was no indication as to the cause of ovarian decomposition. In some cases we have microscopically examined it has been found to be due to coccidial infection, and in others to B.W.D. When the latter is the case, the disease is likely to be passed out in the egg, and cause disaster in the brooder. The only recommendation we can make is to use catechu, fifteen grains to the gallon, and on alternate days a teaspoonful of a mixture made by dissolving ten grains of chinosol in a pint of water.

M. F. C. The post-mortem examination of the pullet showed the cause to be uraemic poisoning, due to blocking of the kidneys with masses of urate, thus preventing normal elimination of waste products. The cause of this condition is dietetic, your ration containing too great a percentage of starchy foods. To promote elimination and clear the kidneys of the accumulated urates give fifteen grains per head of magnesium sulphate, either in the mash or drinking water, continuing for a week or ten days.

T. M. S. Coccidiosis was the cause in the case of the turkey, your diagnosis being quite correct. The fluid in the body cavities was a transudation of the fluid constituents of the blood, which escaped from the great abdominal veins owing to the damming back of the circulation of the liver, due to the extensive disease of that organ. This ascetic fluid was decomposing, hence the fetid odour, having probably become infected by bacteria from the breaking down of a coccidial lesion, in which secondary invaders are usually present. It is an established fact that the embryos in the egg can be, and often are, infected with the coccidial organism through the ovarium of the hen, and also that recovered birds can be carriers. Your hen foster mothers, although apparently healthy, may be the source of the trouble.

J. S. H. The pullets was self-poisoned by absorption from an ovarium in which a number of yolks had died. There are several causes for this. One is by an unbalanced ration and over-stimulation by rich meal and other animal foods. Two other sources have been traced to the presence of coccidia in the clutch, and in others the bacillus pullorum of white scour, or "B.W.D." This happens in chicks that have recovered from the disease, having had it very lightly. Such birds pass out the germs in their eggs, and this accounts for many of the mysterious outbreaks in the next season's hatches. Until a more internal remedy can be found to destroy the bacilli, such as antagonistic microbes, cultivated for inoculating growing pullets, there is nothing that can be done. If it is a dietetic error, the over-stimulating foods can be deleted from the ration.

W. H. All the organs, with the exception of the pancreas, were perfectly healthy. This was converted into a solid white fat, and had entirely ceased to function and contribute its quota to digestion. The absence of pancreatic juice might account for the fermentation and scouring. What causes the change we haven't the least idea. No one else has studied the diseases of the pancreas in birds, and but little is known of its office in the Higher Animal. For a guess we should attribute it to some dietetic error. As to any particular toxin, its isolation would only be possible by exhaustive analyses of all foodstuffs used. The maize was a fair sample. The wheat badly got, and showing fungus in some grains. The proprietary meal we cannot pronounce upon. The only suggestion we have to make is to feed wholly from an entirely different source, by which to obtain negative proof that the cause is in the ration.

Mrs. G. P. We regret to find that the cause in this case is infectious cerebro-spinal meningitis, for which no remedy is known, nor is the method of infection as yet understood. The disease is being investigated at several universities, and any conclusions arrived at will be published in "Eggs" as soon as known.

LEENEY & SAUNDERS,
Avian Pathologists.

DUCK QUERIES.

J. R. Qt. (Northleigh). I cannot say that there is anything wrong with the mash you are giving your ducks, though I think I should cut out the dried yeast. I fancy the fault must be in the quantity. Instead of giving a measured allowance in the evening, it would be better to give them as much as they will eat—sometimes they will eat more, and sometimes less, according to their needs. Instead of the half pound of mash in the morning, give them two handsful of wheat and kibbled maize to every three birds. You do not mention the ages of the birds, if they are second year or third year. You must not expect heavy laying till after Christmas.

F. M. (Essex). I am sorry I am not up in the standard for exhibition Buff Orpingtons. You should apply to the B.P. Duck Club.

SEYMOUR SHAW.

THE INHERITANCE OF FECUNDITY.

To the Editor of "Eggs."

Dear Sir,—Referring to Mr. Haward's letter in your issue of 15th October, your correspondent must have some faith in the reports of the experiments in America with horses, pigs, and cows; but would Mr. Haward care to apply the same rule to poultry?—viz.: "That poultry will breed highest fecund stock only when themselves are at the top of their fecund power," which, I take it, would mean breeding with pullets, instead of second season birds, which is a dogmatical rule in poultry breeding?

Yours faithfully,
A. E. T. MANN.

Seasonal Diseases.

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

In my last article the dismal prophecy of fungoid diseases to be expected has been all too quickly endorsed by senders of dead birds from many districts, and from the western counties more especially. If the eastern district is subject to lower temperatures, it is compensated by a drier atmosphere, and on the whole less disease. That the more advanced poultrymen have less trouble with fungoid and other infectious maladies was evident to me when inspecting the cross-bred pullets for the "Daily Mail" competition, and again the handling of some two thousand odd for the National Test at Bentley last week. Three years ago a considerable number of pens were rejected for health reasons, the next year a very much smaller number, and this year the whole lot were passed in, after putting aside a single case of suspected vent gleet, which proved to be staining only from a temporary cause, and not the infectious malady.

The value of careful inspection then has been proved right up to the hilt, and no disappointed and angry competitors have indited furious letters to the superintendent.

Another interesting thing was learned from Mr. J. N. Leigh, who is a much better bird doctor than he professes to be, and that is the very large measure of success he met with in treating the worst form of roup in a previous season. Out of 73 cases promptly isolated and treated all recovered save four. Such results (where thoroughness is the motto and all his cheerful and enthusiastic helpers co-operate) go far to contradict the advice too often given to destroy the lot rather than attempt medical treatment of an infected flock. We have, perhaps, been a little too rash in condemning a large number of valuable birds, rather than undertake a troublesome task. It may be best to "slaughter out" where but a few badly-kept birds are concerned, but where intelligent and careful assistants are engaged, and the general equipment is good, prompt isolation and suitable remedies enable the poultry-keeper to arrest the spread and cure the affected. This worst form of roup referred to above is that in which the growth of fungus occurs inside the larynx or opening in the back of the tongue, which is the part most carefully examined in "vetting" for shows and competitions. The beginner is met with the difficulty of bringing this part into view, and so misses it. Anyone can see a soft pastey deposit in the mouth, at the sides of the tongue, adhering to the dense membrane under the tongue, etc., and from thence the fungoid material can be scraped away, but *not thrown away*. It should be placed on paper to be presently burned. Soft food may be mistaken for roup matter, but can be distinguished by its easy removal, whereas roup matter adheres tightly to the tissues, and when forcibly pulled off, there remains a cavity from which a drop or two of blood will ooze. This bleeding surface, if painted with a strong solution of iodine, will heal in a day or, at the most two, and the fungus will not recur.

To get a view of the laryngeal orifice, the finger of ne hand is pressed against the throat to bring up the ngue. In Leghorns and other light birds, with combs nd wattles to be got hold of, the part it is most esired to inspect, easily comes into view, unless the ird is badly held, and the loose attachments permit he tongue to pass to one side. Of all the breeds andled, the Wyandotte is the most perverse in this natter. They almost all elevate the tip of the tongue nd hide the view of the laryngeal opening, besides hich the comb offers but a poor hold.

When diphtheritic roup affects the larynx, the deposit s harder and a more distinct yellow colour than when he fungoid material is attached to the mouth memranes. It is more difficult to get at, and a pair of rather ng forceps are needed to get hold of and pull away. he denuded parts are then painted with the one in ixteen solution of iodine, and a cure usually results. n some cases a secondary growth may have to be reated, and success has followed in a few instances here a third effort has been made by the morbid rowth to establish itself.

If the ring of roupous material is not destroyed, the esult is filling up of the larynx, and death by suffocaion. The manner of death or termination of the disease y suffocation is most deceptive to the beginner. The ictim more often than not has appeared to be in ealth, or no more conspicuous symptom than loss of ctivity has been observed. This symptom is accounted r by the narrowing of the lumen of the tube through hich the bird breathes. It finds exertion difficult, and o keeps quiet, and lives just as long as there is suffiient room for breathing, but when the fungus finally loses the air passage, the bird dies. Many of the ubjects for examination are reported as "found dead," nd the enquirer suspects poison. In some others a lueness of the comb and wattles may have been bserved. Some little skill is required to carry out the ryngeal operation of removal, and this may be acilitated by a primary painting of the growth with ither the iodine solution or neat "Condy." To the atter birds are not so susceptible as beasts. The cleft f the palate and the entrance to the windpipe may be wabbed with a strong solution of permanganate of otash without the blistering effects one often sees hen any but weak solutions are injected into the enital passage of cows. The head may be immersed r nearly half a minute in a strong solution, and the outh held open for the medicament to come in contact ith the fungus.

Of all internal remedies, both as preventive and cure, have found nothing so good as sulphate of copper. convenient stock bottle may be kept in readiness if our ounces of the crystals are dissolved, in a quart of ater. Of this concentrated medicine one fluid ounce s mixed with each gallon of drinking water, and no ther drink allowed.

LANCASHIRE UTILITY POULTRY SOCIETY.

Mr. P. A. Francis, M.B.E., Poultry Commissioner of the inistry of Agriculture and Fisheries, has kindly accepted the nvitation to distribute prizes for the 1923-4 International Egg-aying Test, just ended, of the Lancashire U.P.S. at the cientific Rooms, Fishergate, Preston, on Saturday, November th, at 7 p.m., followed by a lantern lecture on his Canadian nd American tour.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

CHAPTER II.

I have considered very carefully how I might best instruct the prospective egg farmer in the mysteries of his trade, and I have come to the conclusion that possibly a plain and truthful account of my own experiences in building up my present farm from zero to a permanent 2,500-hen size might be as good a way as any. We learn as much, or more, from our failures as from our successes, and Heaven knows I have had sufficient failures in various details to warrant my writing this article. If I was starting afresh, I often think with how much less expense, effort, and worry would I attain to my present position in the poultry world. Many of my "failures" seem now to have been so easy to avoid, or, at least, to rectify. For example, it took me several years to solve the problem of how to keep the litter dry during the winter months. Once solved, it seems ridiculous that I should not have found it out long ago. "Experientia docet" is still as sound a motto as when the old Roman wrote it down.

My first experience of the domestic fowl was connected with the barndoor variety, such as lived, moved, and laid perhaps fifty eggs per annum on the old-fashioned farm of some forty years ago. When I think of the abodes in which these fowl lived, I am not surprised at the frequency with which they also died in them. But those were the days before modern hygiene came into vogue. Still, it is a fact that even those fowl **did** lay eggs occasionally, because I well remember tying a recalcitrant "clucking hen" on to its nest in order to induce it to hatch some of these eggs; produced with such infrequency. I cannot, however, recommend this method to the modern poultry farmer. With all its faults, I consider the incubator more reliable.

Passing from these early days, comes a gap in poultry enthusiasm. A long gap of many years, occupied with the unprofitable drudgery of school and army existence. Eventually, having settled down and taken a wife, my attention again became slightly focussed on fowls, owing chiefly to the peculiarly savoury eggs which frequently appeared on the breakfast table. My wife, who before marriage had constantly reiterated her intention of never keeping fowls, was the first to suggest the idea of a few hens just to supply home needs. Probably she had got an even more peculiar egg than I had on that epoch-making morning. Anyhow, I promised to make enquiries, and did finally consult an ancient fancier in Limavady. My own idea ran to Dorkings—the name appealing to me as fanciful and artistic. But the fancier induced me to modify my original intentions, and we finally purchased six White Wyandotte pullets and an "unrelated" cock. The latter was considered a very important accessory to the egg-laying plant, as we had no idea that the pullets could lay without the assistance of the unrelated cock—the feat might have been just possible had he been related, but there was evidently some mysterious merit in an alliance contracted outside the family circle.

The Wyandotte pullets looked very nice and white, and lived in a dear little Tamlin house on wheels, except for one memorable week, when during dwelling-house renovations we evicted the pullets and sent our one servant to sleep in the hen-house whilst we feverishly distempered her bedroom. The Tamlin house held a bed and a chest of drawers quite comfortably, we also turned the dustbath upside down and stood a wash basin on top of it. (Those afflicted with housing problems, please note.) All went well at first, and our Mary roosted happily on her new perch, but one night some boys wheeled her and the house and all away. She came clucking home at dead of night, and we only found the outfit after considerable search the next morning. Mary was distinctly annoyed, and refused to sleep in the caravan any longer, so the pullets were re-installed. I think we allowed them to roost in the trees in the interim. As yet no eggs had appeared, and we began to have grave doubts that the cock must have been related after all, when one day my wife rushed into the room in a state of wild excitement, holding in her hand a diminutive brown oval which even I could see was nothing more nor less than an egg—it was certainly less than most eggs, but what of that? It was evident that our fortunes were made, and that the cock was unrelated after all! Those pullets layed splendidly all autumn and winter, and we realised how absurdly easy it was for intelligent people with brains to make money out of hens. From the day of that first brown egg dates my fall! I have fallen frequently since then, but never with quite such a Humpty-Dumpty crash.

Having amassed (and, unfortunately, swallowed) much wealth during the winter months, we decided that it was up to us to hatch chickens during the early spring. I never really liked my wife's boot-box hatching arrangement for the prospective mother, but I acquiesced, feeling that after all this part of the show was more a woman's job than a man's. So the broody lady and her boot-box were dumped into the conservatory, along with a hatful of eggs, and peace reigned supreme for the space of three weeks, except for the numerous occasions when the prospective mother got bored with her boot-box and sauntered out to chat with her sisters and the unrelated cock. Remembering early days, I had serious thoughts of tying her on the nest, but was told that this was unsportsmanlike, and that now I was no longer a child I should put away childish things and act like a man. So I acted like a man and the hen acted like a woman, and continued to wander away for a gossip whenever the fancy took her. Eventually she produced three white chickens from her hatful of eggs, which, considering all the circumstances, was not bad. The rearing was even more disastrous than the hatching. The hen, being evidently of a society turn of mind, never seemed to take anything but the most perfunctory interest in her offspring. Even the cock proved more interested in them than she did, and he might have developed into quite a model father had he not contracted an unreasonable jealousy towards the largest and healthiest of the triplets, whom he perpetually tried to engage in most unequal contest. The Fates eventually sheared the threads of those three young lives, and we were left with only the old folk around us once more. It was quite evident that hen-hatching was not our speciality and the question of incubators began to absorb our fascinated minds.

The first incubator was, like the first hen—"na poo." It was a very cheap affair, costing a few shillings, and was, I think, made of cardboard, filled with wet sand, and heated by a candle. Like all other incubators, it was guaranteed t hatch every hatchable egg. We ran it in th drawing room, and at the end of three week proved conclusively that none of our eggs wer hatchable. Luckily, however, the incubator wa breakable, so we saved any further trouble an decided to try something more expensive on th next occasion.

About this period, the one and only RANDOLP MEECH shot like a meteor into the somewha humdrum firmament of poultry-keepers. His fascinating list, describing the Philo or City syste of keeping hens, came by chance into my possession, and from that moment my fate was seale Mr. Meech's arguments in favour of keeping th layers entirely shut up in little boxes sounded ver effective and simple, on paper. I purchased s "City" houses, and became an intensivist of th most rabid type. These houses were excellent designed and made, measuring six feet long b three feet, and were each intended to accommoda five hens and the inevitable cock. They were u doubtedly successful up to a certain point, ar under certain climatic conditions, but they ha grave drawbacks—or rather the system had. Th birds were overcrowded and they very soon becan fat and lethargic . . . . . it was almost impossib to keep the litter dry in the autumn and winter . . and the labour of attending to so many sma houses was very great compared to the number birds kept. Mr. Meech himself soon recognis that a much larger type of house was require and switched off on to a modern type of lar open-fronted laying house, which closely r sembled the narrow type used at present (I thin by Mr. Hanson.

I presently became the proud possessor of o of these houses, measuring sixty feet long by t feet wide. Strict Intensivism was still the rul even with these larger houses. Dry mash was hardly known at that time, but dry bran in hoppers was coming into vogue, as an addition to the ordinary wet mash feeding. Mr. Meech was very insistent—and rightly so—on the importance of making the hens take exercise by burying the food in the litter. My intensive experience with that house lasted about a year, at the end of which period I, in common with most other intensivists, decided that we must let the hens out occasionally if we were to get any eggs at all.

Of course, one usually reverted to the other extreme after such experiences, and decided never to shut the birds in under any conditions. I did so revert, and continued to collect eggs in very unprofitable quantities during the winter months.

There is an old classical saying which, I think, occurs in the Odyssey. Ulysses is being warned of the dangers of attempting the narrow straits between the terrible monsters of Scylla and Charybdis, who lurk on either side of the foam-specked rushing swirl of waters. Steer but a shade too far to the left and you are clutched in the deadly embrace of Scylla— Swerve but a hairsbreadth too much to the right, and the equally terrible Charybdis crunches your bones. In the exact centre alone of that dangerous strait can you win through to safety, and Ulysses is cautioned, with the utmost solemnity, that if he must attempt this perilous passage, let him remember always this motto : " There is safety in the middle course." I think that is a sentence which every poultry-keeper might do worse than engrave on his memory. I think it will be found applicable in all the numerous and interesting differences of opinion which exist amongst poultrymen—and always will exist—whether it be the respective merits of wet mash versus dry mash, rearing chickens and keeping hens in very large flocks or the reverse, narrow rations versus wide rations, intensive methods versus extensive methods, trap-nesting versus handling as a basis of selecting the layers, "forcing" for eggs versus so-called "natural" methods, and so on.

I think you will find in the end, if you are out to make a fair income out of the market egg, or, indeed, out of anything else, that the saying which I have quoted is one on which you should base all your operations if you wish to play for safety and success. I will conclude this chapter by quoting it for the second time, and you can think it over whilst you are eagerly expecting the next number of " Eggs " :—

THERE IS SAFETY IN THE MIDDLE COURSE.

---

c-o Etabl. Maurel and Prom,
Bathurst (Gambia).
28th August, 1924.

Dear Sir.—I am very glad to receive " Eggs." It is the most valuable paper on Poultry-breeding I have ever come across.

Yours faithfully,
(Signed) A. NUSSLE.

Turkeys.

THEIR REARING.

By BERNARD REDDAWAY, M.S.P.B.A.

When the time of hatching approaches, the sitting hen should on no account be disturbed. There can be no doubt that quite a number of the deaths which occur amongst young chicken are caused through the eggs becoming unduly chilled during the last two or three days of incubation.

It really stands to reason that this should be the case, because an unborn chicken must be more susceptible to cold than one which is fully made and hatched.

In this last season two hens were set upon ten duck eggs each. All the eggs came from the same parents, and were all put down under the hens within three days of each other. On the twenty-sixth day one of the hens remained off her nest for one hour and ten minutes, the other hen never left her nest for more than twenty minutes a day during the whole time of hatching.

Both hens hatched nine ducklings each, but only three ducklings were raised from the batch which were cooled, while not one died out of the other lot although they both received the same treatment. Those that died were suffering from diarrhoea.

Turkey chicken are a great deal more delicate than ducklings, so if chilling had such a large effect on ducklings, what must be its effect on young turkeys?

The turkey chicken should be left with their mother in the nest until they are all about twenty-four hours old ; they should then be moved to a large coop with a dry earth floor. If rats are troublesome, it is a good plan to have a metal coop, and to cover the floor of it with two inches of slightly-damped earth. The earth should be littered with clean chaff, or well-teased peat moss; cut straw is not suitable as the chicks slip on it and strain their legs.

Before the hen and her chicken are put into the coop it should be well scrubbed out with a hot solution of carbolic, and when it is dry it should be lime-washed ; the wash must be put on so that it fills every crack and crevice in the coop.

The successful feeding of turkey chicken is very hard to carry out. Suitable as dry feeding is for fowls, turkeys do not thrive on it very well. The object and difficulty of feeding young turkeys is to give them enough digestible albuminoids without causing them to become liverish.

A good ration for the first week is: Two parts of the best rice **boiled** in pure milk, two parts of the best middlings (English), three parts of S.G.O., and one part of maize germ meal. These should be mixed into a crumbly meal with milk or water. This should be fed to them three times a day, always at the same times.

(Continued at Foot of Column on Next Page).

Bees.

By E. W. D. MADOC.

HIVES.—II.

In this article I propose to describe the particular hive I have adopted after a thorough trial of a great number of different types of hives. It is not claimed that this is the ideal hive, and I do not advise anyone having a number of hives of a different type to change over and use this one; but I do consider that it has some decided advantages over most of the English types, largely on account of its simplicity and suitability for rapid manipulation, while it is equally suitable as a home for the bees as the most complicated. This Langstroth hive is the standard hive in America, Australia, New Zealand, and, in fact, in almost every country where honey is produced on a large scale.

The bottom is flat with a rim running round three sides, the entrance being on the fourth side; the brood body consists of a perfectly plain box without top or bottom with rabbets cut in the upper ends to support the ten frames which it contains. These frames are about 30 per cent. larger than the English frame; they have short end lugs which makes it unnecessary to have the walls of the hive double at the ends; the frames are held rigidly the right distance apart by means of the end bars which project near the top.

Instead of quilts or sacks there is a plain board over the frames, which much resembles an escape board, and may be used as such by inserting the escape in the hole cut for the purpose. The roof is quite flat with a rim about three inches in depth, and is covered with a sheet of galvanised iron, sheets of paper or other insulating material being placed between the board top of the roof and the galvanised iron.

In comparison with the English hive perhaps the most noticeable feature is the lack of many parts generally considered essential. There are no legs to the floorboard, the hive is stood on bricks, logs, or anything convenient, which results in a more compact hive for moving; the brood body has no porch or plinths. These two features have many theoretical advantages, but in practice none whatever, whereas they have the disadvantages of extra expense, and the plinths prevent the hive parts from being easily prised apart. Instead of the complicated English gable roof the plain flat roof is used, which is cheaper, lighter, and more efficient in its job of keeping out the wet than its English prototype.

TURKEYS. *Continued.*

Equal proportions of kibbled wheat, split groats and broken Uveco will make a very good evening feed. Small grit, fresh water, and green food must always be given to them from the start.

(To be continued.)

Correspondence.

THE INTENSIVE SYSTEM.

To the Editor of "Eggs."

Dear Sir,—I am sorry I did not make myself clear. I did not intend to infer that birds kept intensively would eat more food; rather do I think the reverse would be the case, as I think, at least after the first few months, they would eat less, as they would lay less eggs.

Still, as regards green food, while they must have an abundance, as I always found amongst intensively kept layers, a great tendency for them to lay eggs with pale yolks, the labour of growing this and preparing it would be a factor of considerable importance. When I referred to dear food, I meant to convey that, as the economic position of commercial poultry-farming was different and much less favourable to the producer than it was even one year ago, so it was most essential to employ only those methods that by long experience we have found successful. What is there to gain in the Intensive System against the semi-intensive? Nothing as far as I can see, except in the use of land; the rent or, as it should be, the interest on the capital expended in purchasing land, is a very small charge indeed per head of layers compared with the other costs. The Intensive System would, I think, double the charge in labour, taking the supply of green food into consideration; also, I do not think, however fresh it may be, it is possible to supply this vital food. It cannot be so beneficial in its effects as when plucked growing and green by the birds themselves. If birds are to be kept intensively, then the house adjustments must be varied and numerous. To be continually manipulating these to suit the varying changes, very often of hourly occurrence in this climate, becomes intolerable, and it simply is not done. In the last intensive sheds I built arrangements were made so that the houses could be flooded with sunlight, or closed up at will, to protect from rain or wind. It was all hopeless, and after a long trial, with thankfulness, discarded.

I remember going over a somewhat extensive intensive plant, built in the neighbourhood of London (I forget the name of the farm), where even the roofs of the houses were made to slide open in fine weather. I believe the whole plant was a failure. You, sir, may remember something about it. I will give one more point, and then as far as I am concerned the subject rests. I feel convinced that we have got to study the question of longevity more; that we have got to breed poultry that will give a three or four years' profitable life; that the old idea of scrapping all two-year-old layers is wrong; and that the industry will not bear the costs of such rapid replacements as this system entails. I feel sure it can be done, and, further, it is being done on this farm, and that we can keep a flock of 8,000 profitable layers, fed by a plant whose output of pullets can only reach some 2,500 to 3,000 per annum.

I think—I use the words advisedly—that such breeds as the Leghorns, Wyandottes, Leghorn, Rhode Island, Leghorn-Sussex, Wyandotte, Rhode Islands, White Wyandotte-Sussex, and further crosses from these first crosses, always using pure-bred males, of one of the above-mentioned varieties, will fill the bill (I always put males first), and I have no use at all for sex-linked inheritance, as the varieties it applies to are not my choice, and neither can I afford to scrap the cockerel chickens. It will take a great deal to make me believe that longevity can be developed under the intensive system, with its unnatural conditions; in which the birds are precluded from getting any natural food or coming in contact with the soil. I submit again that in moderate flocks of 100 to 200 on free range, the birds do range freely, as I have ocular proof before me every day of my life; also, even at the rate of 280 to the acre, they do get a supply of worms of appreciable value, and as much green food as they require, for at least nine or ten months out of the twelve.

I should like to have the opportunity of thanking Lieut.-Colonel Macrory for his kind remarks about my book. May I say the price of the last two editions is 6s., and not 7s. 6d. Also, I would like to say I wrote the first edition somewhat under protest, being urged thereto by an editor of a contemporary, for the benefit of ex-service men. I was so dissatisfied with this edition after two years, that I point-blank refused to allow my publishers to reprint it, as they wished, and I wrote the whole thing again. I should have like to have served the third edition in the same way, but had to content myself with a supplementary chapter, and so I suppose it will be if it comes to a fourth, as, with further experience and changes in the economic position, the industry does not stand still, and the book should be read rather as a stage of evolution, than as a hard and fast guide.

Yours faithfully,
T. W. TOOVEY.

SOME IMPRESSIONS ON HOUSING, ETC.

To the Editor of "Eggs."

Dear Sir,—It is really wonderful when we have so many firms claiming that "their houses are ideal," and others who claim that their "food supplies all a fowl needs to assist her, not only to produce eggs, but to keep vigorous and strong," that there remains anything to be said on these matters. Yet, as you so often infer, Mr. Editor, we have scarcely touched the fringe of these things yet.

My houses are of the lean-to type, and yet I fancy that perhaps the gable roof or three-quarter span is better for ventilation, only they seem to be more difficult to build. I wonder what other readers think?

Again, I think that houses want an intake of fresh air low down to keep sweet. The Night Ark will sleep many more than the ordinary house if you give it six inches of air space all round at the bottom. I know some would think it too much draught, but I find that the more air you give the birds the freer they seem to be from colds. What one must avoid, though, is a draught on one end of the house only, as that would make them crowd in the other end. That brings me to one point I have never seen advanced in favour of night feeding, which is a great advantage—that is, when they go back to roost they spread themselves out on the perches instead of huddling up together as they usually do when they go to roost.

Despite what Poultry Appliance people say, I think we are a long way from the "ideal" house yet, and I think the improvements, or, at least, the suggestions, will have to come from the poultry-keepers.

Then, again, there is the litter which is mostly scratched to one side, owing to houses not being equally lighted all round. I think a deep board running through the centre of the house might partly solve that difficulty.

I wonder if anyone has ever tried mixing lime with the new wheat? I had some going mouldy, and I did not like to feed it as it was, so mixed the lime with it, and it took the mouldy smell away. Since then, when mixing corn with new wheat in it, I have added a little lime, as it helps to dry it.

Yours truly,
J. H. G.

THE INTENSIVE SYSTEM.

To the Editor of "Eggs."

Sir,—With reference to the discussion upon the Intensive system, which I have been following with considerable interest in "Eggs," I have patiently waited to see one of our backyard members take up the Intensivist point of view. Evidently they are stupified, the same as I was when I first read your Editorial. I am afraid I have taken it for granted that one *could* keep fowls *well* and profitably intensively. It caused me some surprise that there were people who doubted it! May I quote my own experience?

Three years ago I purchased a few (perhaps about a dozen) day-old chicks from a local breeder. These chicks were bred from parents intensively kept. I reared them intensively in a scratching shed, with leaves and soil as litter. They have never run on grass, and have hardly ever tasted it, being well supplied with fresh green stuff. The pullets from this batch of day-olds laid well during their pullet year; I retained the best for breeding from this year. The cockerel I purchased locally, which had also been intensively reared, but came from a good laying strain. This breeding pen of mine (kept entirely in my own made scratching shed) gave good fertility (see below); 25 eggs placed in C.A.S.H. incubator (never operated an incubator before) gave 20 live chicks—one clear, four dead-in-shell:—

Sat hen on 13 eggs. Result: 10 chicks, 3 clears.

Sat 2nd hen on 11 eggs. Result: 11 chicks.

Sat 3rd hen on 15 eggs. Result: 4 chicks, 6 addled, 2 broken, 3 clears. (This hen had too many eggs apparently).

Sat one bantam on 4 eggs. Result: 3 chicks, 1 addled.

This, during a bad hatching season between March 23rd to May 5th, when last chicks were hatched. I sold 24 chicks at one week old, retaining the remainder, out of which I reared 18, nine of which were pullets and nine cockerels. The pullets are on the eve of laying now—so that one can see that chicks *can* be reared from the shell to maturity. Last year I purchased one dozen day-olds, reared all twelve, and had seven pullets (which averaged 201 eggs each) during season October 26th, 1923, and 31st September, 1924. I shall breed from these intensively-kept birds next season. This time I have purchased a cock from a utility farm, but I have also retained a this year's cockerel (reared intensively), and I intend to note the difference, if possible, in fertility.

This year I purchased 30 day-old chicks and reared every one in small box brooders, *never having had any previous experience* of brooders until this year. I have now 15 pullets, from my purchased day-olds, and nine pullets from my own hatching. Do you know that I have only quite recently parted with my last hens which had had *three laying years* intensively kept. They were filling my egg basket until the last moment, and immediately dropped into a complete moult. My pullets this year from ten weeks old have been fed on Mr. Newman's formula—only used as *wet* mash.

Strange that I should not have noticed that pale and drooped appearance (I quote from memory) attributed to intensively-kept birds by Mr. Toovey in his letter.

I admit it is apparent during the moult.

Sir, forgive me for the length of this letter. Unfortunately, I am not a journalist, or perhaps, I could condense much of this matter. However, kindly separate the wheat from the chaff, and if you require additional facts, I shall be pleased to oblige. The above birds are White and Black Leghorns and Anconas.

Yours faithfully,
H. E. VINER.

P.S. This week's "Eggs" is a bumper! You promised us our money's worth, and, "by jove," we've got it!

Our correspondent should remember that we are discussing the possibility of keeping large numbers of pullets intensively. We have several instances of its success on a small scale. We shall be very glad to have more particulars.—(Editor).

67, Cross Green, Otley, Yorks.
29th September, 1924.

Dear Sir,—During my time on the farm I have taken your well-edited paper "Eggs," and have found it to be very instructive and interesting; in fact, the best of any paper I have come in contact with.

Yours faithfully,
(Signed) H. BOOTHMAN.

The Poultry Farm, Horstead, Norwich.
28-11-23.

Dear Sir,—Since becoming a member of the S.P.B.A. (only a month or two) I have benefitted a very great deal from your splendid, helpful paper, "Eggs." It is a real boon to everyone short of "long service" in Poultry Farming.

Yours faithfully,
(Signed) **Capt. W. T. BEALES.**

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

THE DAIRY SHOW ISSUE.

I must thank all our readers who have so kindly written in appreciation of the Dairy Show issue of "Eggs." It is really impossible to write to them all directly, and I must also take this opportunity of thanking all the contributors who so greatly assisted in making it a "bumper" number. Now we have got to live up to that reputation, and do even better next year.

Perhaps the best appreciation we have had is the number of extra copies which have been applied for from all parts of the country.

At the General Meeting it was suggested by someone that we should curtail the number of the advertisements in "Eggs." Perhaps a little careful thought would have allowed them to understand that even if the advertisements were curtailed by two pages weekly, we should run it at a loss instead of at a profit. We are now in a position to pay for contributions by experts to our journal. If we curtailed the advertisements we should not be able to do so; and as we do not want to stagnate, it is impossible to make the paper profitable if we reduce the number of advertisements. It will be realised that the Dairy Show issue cost us considerably more than an ordinary issue. In spite of this fact, we were the only poultry paper which did not raise the price on this special occasion.

A REMARKABLE MINORCA.

Mr. Harold Marshall has sent me particulars of a very remarkable Minorca hen which was hatched in 1919. Her record for that year was 274 eggs; for the second 207; the third 203; in her fourth she laid 197; in her fifth 207—that is, 1,088 eggs in five years. In itself that is remarkable, but what is also of very great interest is the fact that she always produces a very high percentage—in fact, almost entirely, to quote from Mr. Marshall's words—of cockerels, all strong vigorous birds, and all good in breed characters. The few pullets he has had from her have all exceeded 220 eggs, and the cockerels have invariably produced a very large number of male-breeding birds. One son of this hen was an exception, producing over 80 per cent. of pullets during the three years Mr. Marshall mated him.

One advantage of the Minorca is the size of egg. Mr. Marshall's pen, which won at Harper Adams in 1923, laid only four eggs under 2 ozs. out of some 1,100.

QUANTITY v. QUALITY.

Capt. Hall writes as follows :—

> "Until lately I have been keeping both White Leghorns and Rhode Island Reds. Both have been fed on exactly the same quality of food, and treated similarly.
>
> The White Leghorns have laid more eggs, consumed less food, and paid better than the Rhode Island Reds; but I have now discarded them, because they laid eggs as tasteless and unsatisfying as those unfortunate townspeople have to buy in the shops, whereas the Rhode Island Reds laid eggs as delicious as those which I used to get when visiting a farm house in the days of my youth.
>
> I recently sold some eggs to a man in a country town, the next time I saw him he said, 'Do let me have some more, they are so delicious; I am very fond of eggs, but until I had yours I had begun to fear that I had lost my taste for them.'
>
> Can you explain this, and can you find out by analysis what the delicious egg contains that a tasteless egg is deficient in?
>
> We all know now that mind has a powerful effect over body, and I maintain that a delicious egg will nourish body and soul better than a tasteless one, whatever its theoretical food value or vitamin content may be.
>
> I feel the same applies to milk, bread, and other products, and that modern high-producing hens and cows, like many machines, produce things in quantity and not in quality."

My own experience differs from Capt. Hall's in one respect. So far from the eggs which unfortunate townspeople buy in the shops being tasteless, I have found them to be decidedly tasty—not delicious, oh, no! but "tasty," without doubt. But, to come to the point, it is possible, and indeed probable, that the eggs of high-producing hens are not of such good flavour as those which lay comparatively few, and we must not forget that some breeds lay eggs which are of decidedly better flavour than others. The Campine, for example, has always been celebrated for the delicate flavour of its egg, and it has even been recommended for invalids on that account. The same remark applies to the Old English Game. It may be that the eggs of these breeds, if analysed, would be found to have a higher fat content than those of others; one could hardly analyse a taste. It is almost certain that the egg of the heavy producer has a lower fat content than that of a moderate layer; it is also true that a maize-fed bird will lay an egg with richer and fuller flavoured yolk than one which is fed chiefly on wheat. The same remark applies to hens which have free range over rich pasture. It would probably be true that the egg of the heavy producer would not be so nutritious as that of the poor layer. We have some evidence of this in the fact that her eggs are not so hatchable, and it is perhaps explained by the fact that the nutriment she derives from her food is distributed over a larger number of eggs. However, it is not only a question of the food supply, it is largely a matter of constitution. No matter how we may feed, we could never get from a Minorca as finely flavoured an egg as we do from a Campine.

MISSING FROM THE DAIRY SHOW.

Mr. R. Edgar Cox, of Clovelly Farm, Mattingley, Hants, writes asking if any member has a wrong Light Sussex male bird returned to him from the Dairy Show? If so, will he communicate with Mr. Cox at once.

CHANGE OF ADDRESS.

Mr. A. G. Innes asked us to notify members that he has changed his address, having removed to a larger farm, at The Glen, Canwell, near Sutton Coldfield, Birmingham.

KEIGHLEY AND DISTRICT BRANCH.

I have been asked to visit the above Branch on Wednesday, 12th November, and to present the prizes won in the Laying Test, just concluded at Minorca Farm, Denholme, and at the Show, which was held in the Drill Hall, Keighley, on November 1st. The presentation will take place in the Temperance Hall at a meeting, commencing at 7.45 p.m., and after that is over I am to give an address on Breeding.

APPLICANTS FOR MEMBERSHIP.

Godfrey, C., Bluntisham, St. Ives, Hunts.
Hutson, Miss A. C., Swanley Cottage, Snape, Saxmundham, Suffolk.
Richards, S. M., Woodlands, Ware, Herts.
Patterson, G. F., Snell Farm, Broadbridge Heath, Sussex.
Price, A. E., Culverwood House, Hertford.
Quantrill, G. W., Sun Street, Waltham Abbey, Essex.
Tidman, A. T., Iowa, Granger Road, South Green, Billericay, Essex.
Hatton, G. H., Albury Ride, Waltham Cross.
Till, Joseph, Whitehouse Farm, Rettendon Common, Chelmsford.
Jones, Miss A., Oak Tree House, Binfield, Bracknell, Berks.
Lugard, The Lady, "Little Parkhurst," Abinger Common, near Dorking.
Pogson, Albert, Mill Moor Head, Meltham, near Huddersfield.
Marshall, Geoffrey, Belford, Newent, Glos.
Siller, Miss M. Dagmar, The Wigwam, Hermitage Drive, Buxted, Sussex.
Taylor, Commander H. E., O.B.E., Little Breezing, Greenfield, Watlington, Oxon.
Chadwick, R. F., Homefield, Beccles, Suffolk.
Rogers, Miss M., 36, Coombe Road, Croydon.
Bryant, H. G., 2, Ashford Park, Fordingbridge, Hants.
Tovy, W. A., The Corfe Mullen Poultry Farm, Wimborne.
Haigh, ——, 136, Slades Road, Golcar, Huddersfield, Yorks.
Busby Pond Poultry Farm, Busby, Stokesley, Yorks.
Revill, John W., 21, Upper Sheffield, Barnsley.
Goodman, G. V., Lapworth Poultry Farm, Lapworth, Warwickshire.
Briscoe, Mrs. E. W., The Glebe, Loughgall, Co. Antrim, Ireland.
Rothwell, Albert, The Bungalow, Martin Lane, Burscough, near Ormskirk, Lancs.
Alberdy, L. A., St. Thomas's Road, Great Glen, near Leicester.
Bennett, Fred, Castle Honse, Waterloo Road, Pudsey, near Leeds, Yorks.
Tillotson, Fred, 79, Lower Oxford Street, Castleford, Yorks.
Rhode, Wm., 1, Link Cottage, Woodchurch, Westgate-on-Sea.
Hocking, R. Tellum, Tregaune, Withiel, Bodmin, Cornwall.
May, Francis B., Saltcote Hall, Heybridge, Essex.
Pointon, J. C., 1, Talbot Street, Whitchurch, Salop.
Dixon, F., Dixon Green Farm, Silsden, near Keighley.
Harmer, H. J., 3, Bracken Street, Spring Bank, Ingrow, Keighley.
Mitchell, W., 3, Alma Terrace, off Woodhouse Road, Ingrow, Keighley.
Paige, O. J., Greenfields Farm, Bromborough, Cheshire.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, OCTOBER 31st, 1924.

GRAIN AND FEEDING STUFFS.—English wheat is in less active request and prices have fallen in sympathy with imported wheat. The average price for milling wheat is now 12s. 11d. per cwt., a fall of 2d. on the week, while imported descriptions generally show a more pronounced decline. Best malting barley finds buyers, although not so readily as recently, and prices have an easier tendency, especially for moderate and discoloured samples. Feeding descriptions of British barley sell at about late rates, but imported are distinctly cheaper, American averaging 12s. 5d. per cwt., a fall of 5d. Oats are quiet and cheaper, while maize averages 11s. per cwt., as against 11s. 3d. last week.

Milling offals remain in good demand and prices are very firm; bran shows an advance of nearly £3 per ton since the end of June, and now makes over £9 per ton. Oil cakes also hold their price, although demand is only moderate, except for cotton cake. English linseed cake now averages £14 13s. per ton as against £12 5s. at this time last year, while Egyptian, seed cotton cakes, which now realise about £10 per ton, were obtainable a year ago at about £7 10s.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s; Hull, £8 17s; Liverpool, £9 5s; London, £9 2s. Broad Bran: Hull, £10 7s; London, £10. Middlings—Fine (Imported): London, £11 12s; Coarse (British): Bristol, £11 2s; Hull, £11 5s; Liverpool, £11 10s; London, £10 5s. Pollards (Imported): Bristol, £9 5s; Hull, £9; Liverpool, £9 7s; London, £9 15s. Rice Bran: Bristol, £9 7s; Liverpool, £9 5s. MEAL.—Barley Meal: Bristol, £13 15s; Hull, £14; London, £13 17s. Maize Meal: Bristol, £12 15s; Hull, £12 2s; Liverpool, £12 7s; London, £12 10s. Maize Germ Meal: Bristol, £12 10s; Hull, £12; London, £12 5s. Maize Gluten Feed: Bristol, £12 5s; London, £11 5s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 18s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £20.

EGGS AND DEAD POULTRY.

Best grades of eggs sell fairly well, but the market is quiet for other sorts, although quotations continue to advance for most descriptions. Dead poultry continues to meet a dull trade at about late rates, but rabbits are in request and tend dearer.

Week-end Prices—Eggs (per 120):—British: 30s 0d, 28s 0d; Irish: 26s 0d, 25s 0d; Danish: 28s 0d, 24s 0d; Dutch: 29s 0d, 27s 0d; Russian: 16s 6d, 14s 0d; Belgian: 26s 0d, 24s 0d; Italian: 21s 0d, 19s. 6d.; Lithuanian: 18s 0d, 15s 0d; Moroccan: 14s 6d, 13s 9d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d, 1s 5d; Irish: 1s 3d, 1s 0d; Others: 1s 5d, 1s 2d. Ducks: 1s 1d, 11d. Geese: 1s 3d, 10d.

EGGS.

Per Doz.—Ashford: First, 3s 4d; Second, 3s 2d. Birmingham: First, 3s 0d; Second, 2s 7¼d. Bridgwater: First, 3s 2d; Second, 3s 1d. Carlisle: First, 3s 3d. Chelmsford: First, 3s 3½d; Second, 3s 1¾d. Denbigh: First, 3s 3d; Second, 3s 2d. Derby: First, 3s 4d. Dorchester: First, 3s 5d. Exeter: First, 3s 1d. Hereford: First, 2s 10d. Ipswich: First, 3s 3d; Second, 3s 0d. King's Lynn: First, 3s 0d; Second, 2s 9d. Lincoln: First, 3s 0d. Llandilo: First, 3s 0d. Newport (Mon.): First, 3s 6d; Second, 3s 3d. Norwich: First, 3s 3d; Second, 3s 0d. Oswestry: First, 3s 3d. Penzance: First, 3s 0d; Second, 2s 11d. St. Ives (Hunts): First, 3s 4½d; Second, 3s 3d. Shrewsbury: First, 3s 3d; Second, 3s 0d. Skipton: First, 3s 0d. Truro: First, 2s 10d. York: First, 3s 6d; Second, 3s 3d.

FOWLS.

Per lb.—Birmingham: First, 1s 2d; Second, 8d. Derby: First, *5s 6d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 7d; Second, 1s 5d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *4s 9d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 7d; Second, 1s 5d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *5s 6d; Second, *4s 0d.

* Per Head.

What our Readers think of "Eggs."

42, Cherry Street, Birmingham.
18th October, 1923.

Dear Sir,—I may say I am a regular reader of "Eggs," which I consider is the best paper published on Poultry matters.

Yours faithfully,
(Signed) A. B. BRADLEY.

25, Woodland Road, Barry Dock, Glam.
10th April, 1924.

Dear Sir,—I am only a backyarder, yet I may say I have learnt already quite a lot from its columns, and am bringing your paper before my fellow-members of the Barry Fur and Feather Society at our next meeting. With anticipatory thanks.

Yours faithfully,
(Signed) F. CURLE.

Oldfield, Eversley Park Road, Winchmore Hill.

Dear Sir,—I may say I have only just discovered that "Eggs" is just the book I have been looking for.

Yours truly,
(Signed) J. DAFFARN.

Crafnant, Chester Road, Neston, Cheshire.
9th April, 1924.

Dear Sir, As a beginner, I have only just heard of "Eggs," and take this opportunity of thanking you for the valuable information contained therein.

Yours truly,
(Signed) E. COPELAND.

Long Whatton, near Loughborough.
10th April, 1924.

Dear Sir,—At the same time I would like to state my appreciation of "Eggs." In my opinion it is an infinitely better paper than any of the other poultry publications.

Yours faithfully,
(Signed) C. H. KEITH JOPP (Major).

Ash View, Heaton Grove, Bradford.
3-1-24.

Dear Sir,—I might say that I have found "Eggs" to be the most helpful paper I have ever seen, and only wish I had taken it sooner, as I should have started on quite different lines if I had done so."

Yours faithfully,
(Signed) G. H. GRIFFITHS.

London Market Advice Table, November, 1924.

By A. V. CLARKSON.

This is a month in which it is very difficult to give definite advice, because it is the time when most Poultry Producers are having their annual clear out. This is also the month during which producers should concentrate all their efforts on fixing their arrangements definitely for the coming spring's production, and if at all in doubt should make full enquiries of the London Market. Poultry is still rather over-ruled during this month by game, and it is in November that a tremendous lot of pheasant shooting is done, and although grouse are becoming very scarce pheasants will, to a great extent, rule the market.

CHICKEN.

Chicken will maintain fair prices for this time of the year, taking into consideration that this is generally the time when all kinds of poultry are at a discount, and inclined to slump. A big factor in the case is weather, and the change from wet and muggy weather to bright cold conditions will certainly improve both trade and prices.

HENS.

Old Hens, providing they are really fat, will still sell well alive, providing they scale 4½lbs. or over, but Leghorns and birds which have been exhausted by a long period of laying do not sell so well, although, of course, there is always a market for inferior stuff at its face value.

RABBITS.

Wild Rabbits are now in good demand, and make very good prices. They should be sent in special crates supplied by the salesman.

Tame Rabbits. There is now a daily improving demand for really good tame rabbits, and these sell best on the London Market on Tuesday, Wednesday, and Thursday.

DUCKS.

There is a fair demand for good large duckling, which should be sent killed and clean-plucked.

GEESE.

There is a very limited demand for geese, and not much chance of improvement until the Christmas demand commences. Only birds which have been specially pen-fed will make fair prices. They should be sent killed and clean-plucked.

TURKEYS.

Turkeys are now beginning to arrive on the London Market, and are in better condition than at this time in previous years. There will be a steady demand for a few special birds from now onwards until the near approach of Christmas, when the demand will lapse for a week or so just before the real Christmas Market materialises, so small lots up to half-a-dozen nice fat birds will meet with a ready sale. These should be sent killed and clean-plucked and packed with straw in well-ventilated cases.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, November 5th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office
FIRST POST FRIDAYS
for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS.

FOR SALE.

Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faverolles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

Now booking orders for delivery after January 1st, S.P.B.A. Laying Test, Winning Strain (Maddison's direct). R.I.R. Eggs, 7s. 6d. doz.; £3, 100; unfertiles replaced. Chicks, 20s. doz.; £7 10s., 100; superb type, colour, laying qualities. — Simmins, M.S.P.B.A., "Heathfield," Sussex.

Don't waste your fowls' time

DON'T waste your fowls' time by giving them ingredients in their mash that are not actually required for egg-production.

If you do, you must see what a lot of eggs you lose while the birds consume these unwanted ingredients in an endeavour to get the kind of nourishment they require.

It wastes their time, your time, and your money, and it's bad for their digestions.

You can supply just what your fowls need in the most easily digested form by feeding Ful-O-Pep Laying Mash, dry and straight from the bag.

Ful-O-Pep Mash is scientifically balanced and contains nothing but what is actually required for better health, better egg-production, and a longer effective life.

FUL-O-PEP TRADE MARK
LAYING MASH

NO MIXING : NO HEATING WATER : NO TROUBLE

The Ful-O-Pep Handy Monthly Guide tells you all about correct feeding. Save time and money by sending a postcard for a copy to-day. This book has detailed suggestions for every month of the year. It also contains 12 monthly egg charts for you to record your eggs. Free and postage paid.

Made and Guaranteed by
QUAKER OATS Ltd, 11 Finsbury Square, London, E.C.2.

EGGS AND CHICKS.

FOR SALE.

Marsh Daisies Orders now being booked. Eggs, 12s.; Day-Olds, 24s. dozen. Delivery, December onwards. — Hemelryk, Old Mill House, Partridge Green.

READY NOW.
Light Sussex, Day-Old Chicks; price, £1 1s. per dozen.—Moore, St. Edmund's Lane, Bures, Suffolk.

ALEX. J. BELL, M.S.P.B.A., U.D.C.,
Longwick, Princes Risborough, Bucks, is now booking Sittings and Chicks from his Pedigree Pens of R.I. Reds, White Leghorns, Indian Runners, and Khaki-Campbells. List free. Satisfaction insisted on.

SPRING CHICKS!
SPRING CHICKS!

Thousands of Fertile Eggs available from large-framed Light Sussex; 50s., 100; £11 5s., 500; £21 5s., 1,000. Assorted Sussex, R.I. Red, Buff Orp., White Wyandotte, and Barred Rock Eggs; 45s., 100; £10, 500; £18 15s., 1,000. Unfertiles not replaced; 85 per cent. fertility guaranteed. Order now before the rush. Eggs ready now, or can be despatched on dates specified, if booked in time. Day-Old Chickens available from January. We have a flock of nearly 5,000 hardy, healthy birds. Send for Illustrated Catalogue, free.

EASTMAN BROS.,
SUFFOLK POULTRY FARM,
HADLEIGH.

PULLETS.

FOR SALE.

Black Leghorns. Needing the room have about 30 Black Leghorn Hens, 10s. 6d. each; and some 1924 Cockerels, 10s. 6d. each, for Sale.—Innes, Brean Cottage, West Monkton, Taunton.

Exchequer Leghorn Pullets and Cockerels for Sale, bred from 2nd Crystal Palace Hen and Reserve, Crystal Palace and 1st and Silver Medal Bath and West cock. Price 15s. and £1 1s. each.—Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites, 1923 and 1924 Pullets and Cockerels of this new and excellent breed for Sale, bred from Winners two 1sts and Silver Medal, Bath and West, 2nd and 3rd Leicester, Birmingham, Crystal Palace, Reserve Olympia, H.C. Dairy. Prices, from £1 1s. each.—Innes, Brean Cottage, West Monkton Taunton.

12s. 6d. each, February-March hatched, Simpson Barron White Wyandottes, Golden Measure Reds, Bostock Smith's-Hunter White Leghorns; Wilson strain, Indian runners; 6s. each.—Allday, S.P.B.A., P.F., Cotehill, Carlisle.

500

1924 PULLETS.

WHITE WYANDOTTES. } (Trap-nested).
WHITE LEGHORNS. }
R.I. REDS, LIGHT SUSSEX.
BARNEVELDERS.

Highest-class birds, reared on free range Well-grown, large size; 15s. and one guinea each, carriage paid, on approval. Reduction for quantities. Pupils taken, all branches, Utility and Exhibition. Good accommodation.

HEATHLANDS POULTRY FARM.
Ottery St. Mary, Devon, Members of P.C., S.P.B.A., R.I.Red, W.W., and Barnevelder Clubs

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association

WEDNESDAY, NOVEMBER 12th, 1924.

Editorial.

ARTIFICIAL LIGHTING.

The question of artificial lighting and its value has been frequently discussed in these columns and those of our contemporaries. At the various conferences we have had papers by those who have tested it; but it is all very unsatisfactory. We have arrived at no definite conclusion. All that we know is that its use results in an increased output of eggs during the winter months; but at what cost these are obtained we have no reliable figures to guide us. Even as to its effect on the stock itself there appears to be a difference of opinion, but it is probably correct to say that it is a mistake to place pullets intended as future breeders under light; there is also some evidence that it will help to bring along the late hatched and backward pullets.

In an article in the "American Poultry Advocate," entitled "Some Factors in Artificial Illumination," Mr. L. Harris Hancock says:—"If there is anything more interesting, if there is anything more valuable to the poultryman in the hen house, we have yet to discover it."

With all respect to the writer, we think—and possibly our readers will think—this is a little exaggeration; true we find our interests in different directions, and we may gain much valuable information, and be able to make some useful deductions, by observing the effect of artificial light, but there are most certainly other things which are more valuable.

Mr. Hancock found that by turning the light on a bunch of Leghorn pullets, which were very small, a dismal failure was recorded, because the birds were stunted, and even when they came into lay their eggs were unusually small. He adds, "Here then is one limitation, use it on birds that are well matured and almost ready to lay."

If the pullets were stunted owing to environmental conditions, apart from the feed, it is fairly certain that placing them under light would not have a beneficial effect. If, on the contrary, their lack of size was due to underfeeding, we may be quite sure they would have responded to the fuller feed obtainable under the light, for we have definite evidence that young stock whose development has been checked by insufficient feed will immediately respond when placed upon full rations.

Dealing with the neck moult in early hatched pullets, Mr. Hancock thinks this a case where illumination becomes a necessity. "It is always said," he remarks, "that such a bird will moult partially or wholly during the fall. This, I think, is a mistaken idea. I believe an early pullet moults only in proportion to her laying ability. In other words, a poor bird moults, a good bird does not. Where poor birds are concerned, illumination therefore is a necessity in defeating the fall moult."

This coincides with the view we have so often expressed in these columns, that the neck moult of the early hatched pullet is due to her failure to consume sufficient food for production and bodily maintenance, with the result that she gets out of condition and moults; but, as to Mr. Hancock's theory that the bird which moults early is necessarily the poor layer, we feel that confirmation is needed. If such is the case, we can only say that the vast majority of early hatched pullets are poor producers, and that we are certain is not so, and that normally they will not be "laid out" in June or July. However, his experience is worth noting, because we have always urged that this early moult is worth studying from the point of view of inheritance, and that the only possible way of defeating it is to increase the fat content of the food.

Mr. Hancock is of opinion that the working day—that is to say, combined day and artificial lighting—ought to be fourteen hours; but he admits that too long a day often pushes the birds so hard that they break down physically or else moult. It is also true that birds moult in the spring if the lights are turned off abruptly.

Speaking of a breeding pen of 122 selected birds, he says:—

> "As breeders, I kept the light turned off until the first week in January. The birds were well feathered out, and they promptly responded to the stimulation, February first their egg production was averaging 80 eggs a day. The fertility was 95 per cent., and the hatchability often exceeded 80 per cent."

Then follows a different tale, and we see the effect of light when it has really resulted in forced production:—

> "The following year, last year in reality, I made a further experiment on breeding birds,

ranging from one to five years of age. They were well feathered out when I turned the lights on them December 20th, although their combs showed little sign of redness. There were one hundred and seventy-eight birds in the pen, and their response to illumination was remarkable. There production climbed day by day until they reached ninety for a steady average the last of January. This was the peak of their production, however, and a decrease set in rapidly; February 7th they layed 48 eggs; March 7th, 33; March 16th, 17; March 17th, 15.

At this time the situation seemed hopeless, and I took the worst possible chance; turned the lights out completely, March 17th. I expected a full moult; I expected the end of eggs entirely, but yet, I felt absolutely positive illumination was the cause of their downfall. As a matter of fact the birds did not moult when we turned the lights off; they did not stop laying, but increased. March 25th, eight days later, their production had increased to 42; April 1st to 60, and right on up. At the present time the birds are still laying forty per cent.

There is another side to this question, however, and that is the fertility and hatchability of the eggs from the hens in question. The pen of one hundred and seventy-eight birds contained nine cockerels. The fertility in early February was eighty per cent.; the hatchability, sixty per cent. The last of February these per cents. remained the same even in spite of the wearing process of illumination. In March when the lights were turned off the fertility increased to ninety per cent. and the hatchability rose to seventy-eight per cent. The hens were not out on range during any of this period."

NATIONAL POULTRY INSTITUTE.

APPOINTMENT OF DIRECTOR.

The Governors of the Harper-Adams' Agricultural College have offered the position of Director of the National Poultry Institute, which is to be established at the College, to Professor Willard C. Thompson, head of the poultry division of the New Jersey State Agricultural Experiment Station, U.S.A. Professor Thompson, whilst unable to accept a permanent appointment, has agreed to act as Director for a period of two years, and his appointment, subject to this proviso and to the approval of the Ministry of Agriculture, has been confirmed by the Governors. It is expected that Professor Thompson will be able to take up his duties at the College about the middle of November.

In making this appointment the Governors have been actuated by the conviction of the imperative necessity for obtaining the very best man available for this important new development, which demands a combination of sound scientific training, experience in teaching and research, and wide practical experience, and they are satisfied, after careful and prolonged enquiry, that this aim could not be secured without going outside the confines of this country. Professor Thompson has won a high reputation on the American continent through his work at the New Jersey Station, and has the advantage of personal acquaintance with many of the leading representatives of the poultry industry in this country whose unanimously favourable testimony to his ability and personality has greatly influenced the Governors in making the appointment.

Modern Poultry Feeding.

By **TOM NEWMAN.**

FISH MEAL.

A correspondent writes to me to the effect that she has received a newspaper, in which the following paragraph appears:—

> "Fish meals frequently give a fine analysis, and yet breeding stocks fed on this produce eggs the yolk sacs of which are too fine to yield strong, healthy chicks. A great deal of harm has been done to the industry by the increased adoption of fish meal for layers. Protein in animal or vegetable form combined is a safer egg developer."

I think this statement is best refuted by asking my readers to look around on the many scores of poultry farm in this country where vigorous and robust chicks are reared annually on fish meal as the sole source of animal protein.

Such a confident statement as this should not be made without it can be demonstrated that it has been proved beyond dispute. In what manner fish meal produces fine yolk sacs we are not told, and it is very difficult to understand what is meant by the yolk sac "yielding" chickens.

Then, again, the statement that "a great deal of harm has been done to the industry by the increased adoption of fish meal for layers" needs confirmation. I fancy those responsible for it would have a great deal of difficulty in proving their assertion. Undoubtedly the excessive use of fish meal has proved injurious, but that is not the fault of the fish meal itself, but of those who have used it in excess. I have frequently drawn attention in these columns to the injury caused to birds by the very high percentage of fish meal which is used on some of our commercial farms. The excess is so great that they cannot possibly assimilate it, and, therefore, there is also a great waste. It should also be remembered that there are many great grades of fish meal on the market, some of which are only fit for manurial purposes. (1) The pure white fish meal is made solely from the flesh and bones of white fish—those parts of the fish which are unfitted for human consumption. The fish are gutted at sea, the livers are packed in barrels, the entrails thrown into the sea. At the ports the fish are filleted. The heads and bones, with a good deal of the attached fish, are removed, and it is from this that the meal is made. Much, however, of that which is sold as fish meal is the refuse from the markets, which is, of course, inferior, and also from red fish, such as herring, which contains a very high percentage of oil, and is thus unfit for our purpose. During the past two or three weeks I have investigated several complaints of sickness amongst birds which had been directly traceable to what is known as red fish meal. This contains an excess of oil, and it should not be used. It is a dark brownish red colour. If fish meal is preferred to meat and bone meal, then it is always advisable to buy the best brand of white fish meal, and it should have a guaranteed analysis of:—

55-60 per cent. Albuminoids.
18.25 per cent. Phosphate of Lime.
Not more than 4.0 per cent Oil.
Not more than 4 per cent. Salt.

PULLETS SLOW TO LAY.

I am receiving complaints from all over the country concerning the slowness with which pullets are coming into lay. Also a number of others write to say that their birds have started well, but there has been a gradual decrease in production, instead of the normal increase. I have examined scores of diets and hundreds of samples of foods. In a great many cases one could attribute it to the quality of the foods used; more particularly the millers' offals (bran and middlings), which are so inferior that they cannot nourish the birds sufficiently. The question is becoming serious, for as I stated at the General Meeting of the Dairy Show, there is considerable under-production due to the poor quality of the foodstuffs which we are now getting. Readers must use their judgment. If the bran is so poor as not to be worth using, then it is better to omit it from the mash. If the middlings are coarse it would be better to supplement them with an additional quantity of either maize meal or ground oats in the mash. I have tried to explain, as far as possible, in previous issues, how to detect the difference between a good sample of bran and a poor one, and a good sample of middlings, and a poor one. I was very much astonished at the number of visitors to our stand at the Dairy Show, who seemed quite unable to appreciate the difference. It is such an mportant matter, especially when bran and middlings orm such a high percentage of the mash

Whenever production is below the normal, or the oullets are slow in coming into lay, we naturally look o the feeding in the first place. This is as it should e, but we must not forget other factors which may ave a very considerable influence. There is little oubt that the past summer, wet, cold, and sunless as t has been, has had a very bad effect upon the stock. We all know the value of sunshine to growing stock. t would, perhaps, have been better to have said the *eed* of it. This will, in a great measure, explain why he pullets are so slow in coming into production, and he rough wet weather will explain why the ormal increase is not in evidence. High winds, specially during the night when the birds are on the erch, make them highly nervous, and a nervous bird vill always assimilate its food badly. The quality of he foods, however, is of the utmost importance. If hey are as inferior as many of the samples sent me, hey are generally very unpalatable, and this of necesity affects their digestibility, and also the quantity onsumed.

I want to say just one word on the question of amaged food, particularly wheat, of which there is a onsiderable quantity on the market at the present ime. The evil effects of feeding this are not always nmediately apparent, but they are certain to follow. n a letter which was sent me to-day in reference to a omplaint as to damaged and mouldy wheat, the eller asserted that if the damaged wheat was mixed ith other grains there would be no danger. Whether his assertion was due to gross ignorance or was an ttempt at bluff, I cannot say, but there can be othing more uneconomical than buying damaged rain.

A Centralized Poultry Service System.

By A. MORTON NANCE.

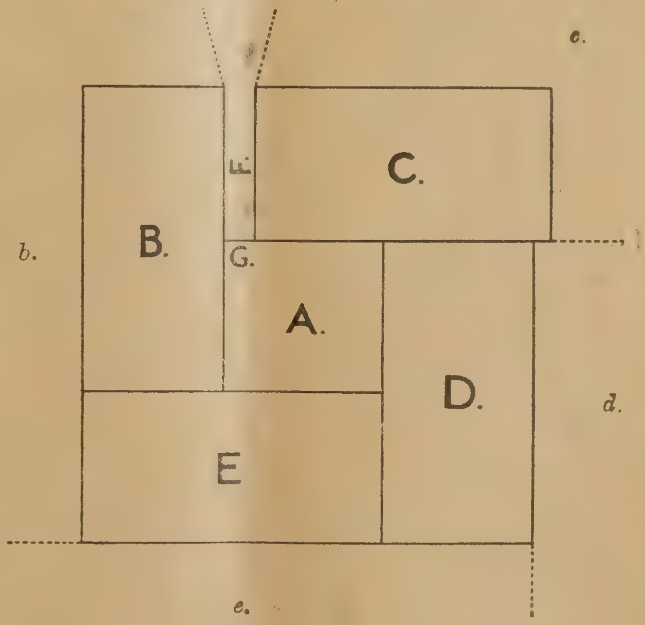
The question of economy in poultry-keeping, in view of the high prices of food-stuffs, building materials, etc., has had, for some time past, a prominent place amongst the various matters of vital importance to poultrymen, discussed in "Eggs."

It was partly on account of the impressions formed in my mind by reading these articles, and partly as the outcome of my personal experiences, and the complaints continually in my ears of "brothers in adversity" of less profits owing to the present strained and difficult conditions that the idea came to me.

This was of a concentrated and labour-saving scheme of poultry-keeping, which would enable one man, if necessary, to manage with comparative ease up to 1,000 head of poultry, with the minimum amount of fetching and carrying and the saving of innumerable journeys hither and thither through his yards.

It should be a very simple matter to explain a very simple system, and I think the following rough sketches with explanations will suit my purpose.

Sketch I.



Sketch I. is merely suggestive as to measurements, and the accommodation would be, roughly, from 500 to 600 head of poultry, light or heavy breeds.

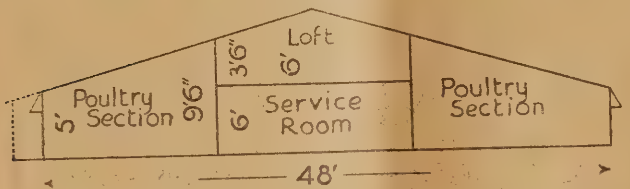
In the centre, A. is the service room from which most of the poultry manager's service work, as well as food mixing, is done; all, in fact, except the carrying of water from the pump in places where it is not supplied to the poultry houses by water-pipes, the changing of the litter, and the cleaning out of droppings and the houses themselves—also raking in the grain where it is done.

In my diagram the service room is 16 feet square.

The entrance for operator and supplies is by the 3 feet wide gangway, F. and door G.

Each of the poultry sections B., C., D., E., are 16 x 32 feet, the three feet taken out by F. being replaced at the other end of C. by a 3 feet extension.

Sketch II.



The building is placed in the centre of a piece of land occupied by the runs, a, b, c, d, all of which will be equal in shape and size.

Sketch II. is sectional, and requires no particular remarks, except that the loft above the service room has a pulley fixed to the roof apex, from which a rope hangs for hauling up filled or empty sacks, litter, etc., for storage from the service room. Where food is bought in larger quantities, this should prove a serviceable arrangement.

The dotted lines indicate the 3 feet extension.

The mode of access to any of the poultry sections may be from the service room, but the scheme lends itself to any other arrangement.

Sketch III. shows one side of the interior of the service shed.

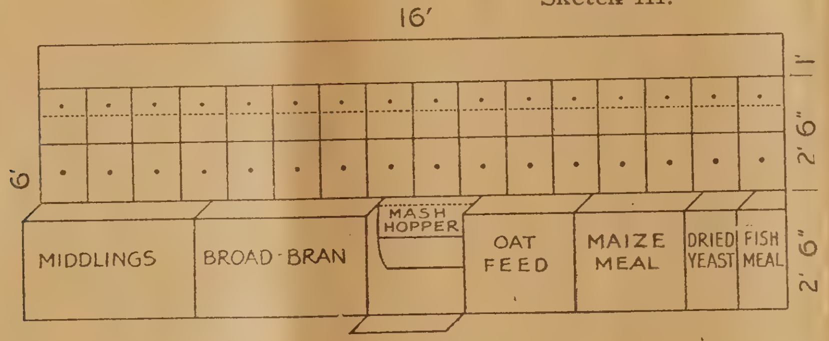
The bins are arranged as to size, according to proportion of parts in the formula for the mash, which is mixed on the concrete floor, and the mash hopper in the centre is filled through the hinged cover.

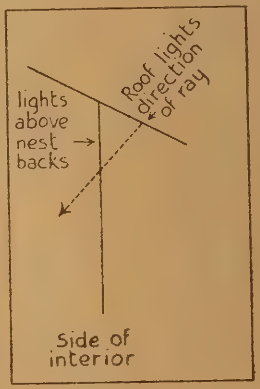
Over the bins are the backs of two rows of trap-nests, the lower half of which is hinged to the upper and is raised to liberate the bird and recover the egg. The drop hinged trap under the mash hopper is opened to return the bird to pen.

Above the trap-nests is glass, through which light is received from the glass in the roof (see inset). The upper part of the entrance door (G. in Sketch I.) is half glazed for further light.

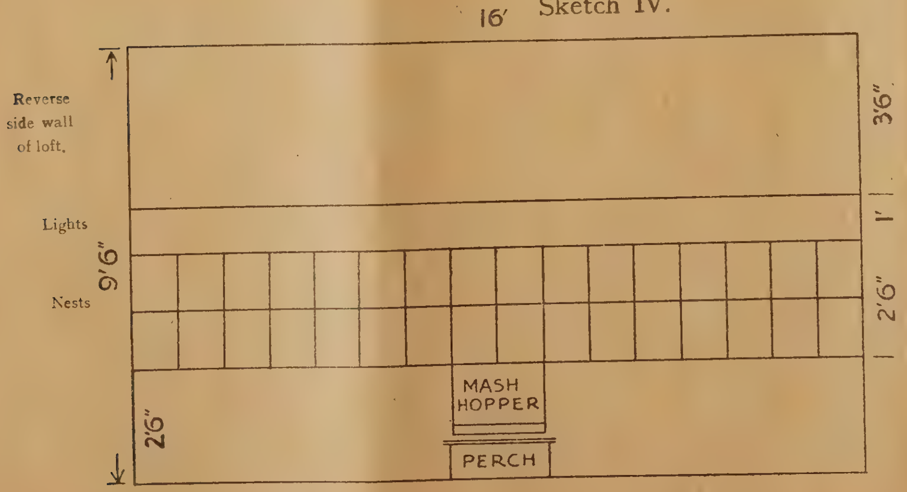
Immediately to the left of the right hand bin in the end wall of the service room is a hinged trap through which the hand reaches to lift out from its

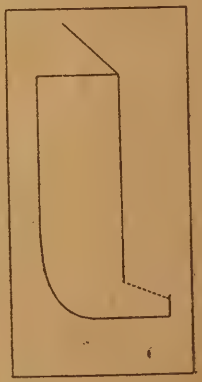
Sketch III.





Sketch IV.





place a water fountain, placed conveniently for that purpose, to supply two pens at once with water by being let through the pen division. This facilitates cleaning and re-filling.

Sketch IV. gives the pen side of the service room division.

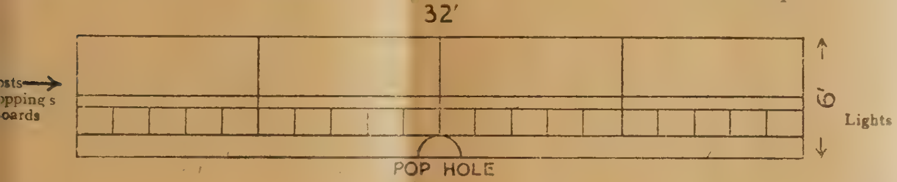
In the centre, beneath the nests, may be seen the mash hopper, two feet wide, and one foot from the floor or ground and 18 inches deep, and the perch in front of it. The inset sketch shows the design recommended to prevent clogging as far as possible.

Wet mash may be fed by this system by providing a trough which may be passed through a hinged trap in the space occupied by the dry mash hopper.

Alternative suggestions present themselves for the arrangement of dropping boards. They may be either fixed on the front side of the section or down the middle.

In the former case they may be divided off by screens at half way or every 8 feet, or otherwise, as preferred, whilst scratching lights may be fitted immediately under the droppings boards, also pop-holes as under :—

Sketch V.



In the latter, if the roosts and droppings boards are carried down the middle of the pen, lights any size required and ventilation could be arranged under eaves.

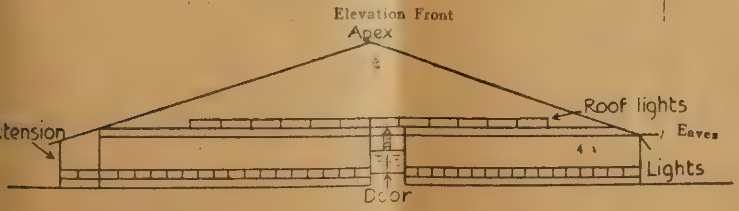
The doors between pens and leading out into the covered gangway are 3 feet wide with 6-inch or 1-ft. slide at the foot of each, removable for the admission of a wheelbarrow for cleaning purposes.

For further lighting and ventilation, when the former position for the droppings boards is desired, lights and ventilators may be introduced at the narrow end of the pen next the run.

To facilitate provisioning, etc., the width of the approach may be widened to allow a vehicle to approach the 3 feet gangway, without taking much away from the runs.

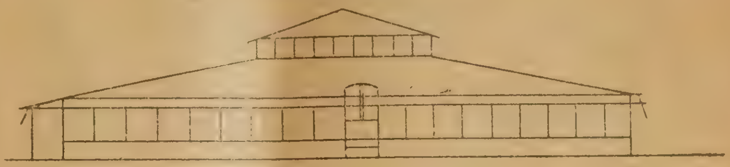
The supply of water may be considerably assisted by water-butts in connection with roof guttering, convenient for use at the gangway.

Sketch VI.



As the covered gangway is only 5 feet in height, a small piece may be left out of the roof in order to raise the head room, or, if preferred, the gangway can be open.

Sketch VII.



This is a variation of the front elevation, and the lights and ventilators in this case are arranged under eaves, as the droppings boards are central. The pitch of the roof is lowered to allow lights in the loft.

The aeroplane view of the roofing in Sketch VIII. shows how the sections may be extended to increase the flock accommodation.

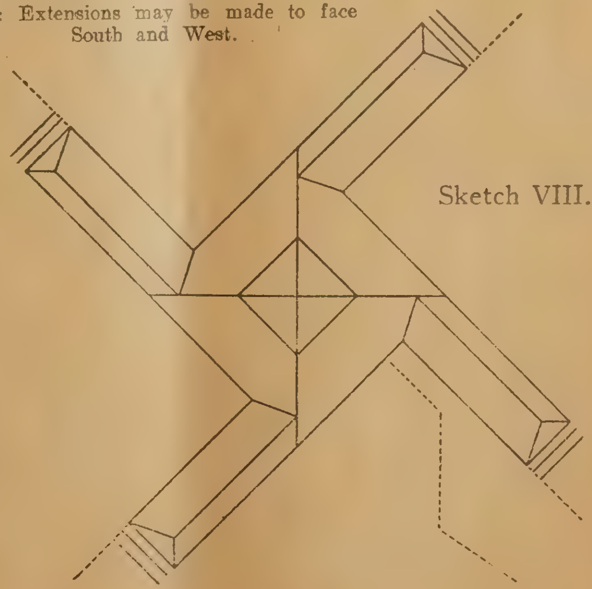
The width of sections may be reduced to obtain additional roost room, and the size of service room increased according to requirements.

The dotted lines in this sketch indicate the wire netting of the runs, with a slight deviation from the square at the point of approach for supply facilities.

The strong point of this scheme is perhaps that the time saved in attending to the needs of the flock could be spent in the very essential individual attention.

As it is my intention to put the system into practice on my own farm later on, I hope this article may stimulate fair criticism and wholesome help from experienced poultrymen of the S.P.B.A. who are not entirely chained up to certain existing methods which must very soon become obsolete on account of the rapid pace at which the service is progressing.

Note: Extensions may be made to face South and West.



Sketch VIII.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

Chapter III.

The second incubator tried by that go-ahead firm "Macrory and Wife" was a much more ambitious affair. It was known as the Cycle Hatcher, and had just been introduced from America by the great King Randolph. It held about fifty eggs, was made entirely of metal, and proved a really good hatching machine. When I say that it lived on the drawing-room table, in close proximity to a much-used though somewhat blatant piano, and that in spite of this it hatched out quite a goodly percentage of chicks, readers will appreciate the intrinsic worth of this machine. It is true that many of the chicks came out with bandy legs and reeled about like drunken revellers. But this, as a lady friend pointed out, only proved that they were embryo Pavlovas, still trying to tango to the strains they had heard prior to their nativity.

Whilst waiting for the birthday party of these eggs, I had not neglected to study Mr. Meech's City System and the catalogues dealing therewith. Result—I had a City fireless brooder all in readiness for the fluff-balls when they arrived.

I forget exactly what happened, but I remember vividly that there was soon only one fluff-ball living in the City brooder. Talk of Goldsmith's "Deserted Village"! The "Deserted City" was a much more pathetic sight. The one chick did manage to survive several days in the brooder, though I well remember occasions when it had to be brought back to life by being dumped in the drawing-room grate close up to the fire. The re-vitalising effect of HEAT is extraordinary. There were times when that chicken looked as dead as the deadest mutton, and yet a short course of this primitive heat treatment almost invariably pulled it together again. I say **almost** invariably, because the last treatment failed to take effect, so we reluctantly relinquished the attempt, and cremated the corpse with full military honours.

In February, 1912, occurred a momentous event in the poultry world, no less than the publication of the first number of a modest little weekly paper, measuring about nine inches long by six inches wide, and entitled "EGGS"—the Official Organ of the Intensive Poultry League. It was edited by our old friend Randolph Meech, and the little journal was really a remarkable production, from the very first number. It was illustrated with photographs and drawing of various poultry plants for the most part, though one of its earliest illustrations was entitled "The Olympic in Mid-Ocean—White Star Co.'s latest 'Leviathan,' in which Mr. Randolph Meech crossed to New York." This picture consisted of a naive drawing, showing a huge four-funnelled steamer labouring in a woolly ocean. I attributed the execution of this work of art to Mr. Meech himself, and I admired his versatility.

From the very first I enjoyed reading "Eggs." It was so fresh and quaint and full of new ideas, although it had no use whatever for any hen who went in for the outdoor life. As an antidote to the sloppy, manure-heap style of poultry-keeping practised by the pre-historic farmer, this intensive idea had its uses—and very important uses—but even Mr. Meech, I think, had forgotten the motto, "There is safety in the MIDDLE COURSE." Undoubtedly the new method evoked much public interest. Even the "Daily Mail" devoted space to criticising it, though whether it was hostile criticism or otherwise I have never quite been able to fathom. The "Farmer and Stockbreeder" made no bones as to its views on the matter, and there is no doubt that if Mr. Meech was steering a bit close to Scylla, his opponent in this case was in just as dangerous proximity to Charybdis. A quotation from the "Farmer and Stockbreeder," of November 25th, 1912, will illustrate its views on the subject.

> "CHICKEN REARING.—We are also told that chickens can be kept successfully under this Intensive system. They are in flats, with living-room and bedroom carpeted with chaff and lit up by electric light. We are not told whether the furniture is in old oak or mahogany."

Mr. Meech replied to this criticism in his usual vigorous fashion. Indeed, much of the amusement derived from "Eggs" in those days was in reading the trenchant and outspoken attacks and counter-attacks of intensivists and free-rangers. The battle finally ended in a somewhat indecisive draw, and a new Coalition Government arose, styling itself "The Semi-Intensivists." Having adopted the middle course, they were comparatively safe, though I am not at all sure that "Semi-intensivism" (as generally practised) is the last or best word in poultry-keeping. I rather think I see signs of total intensivism once more coming into vogue, and, with the modern improved and scientific methods of feeding and housing, it may well be that this time it has come to stay. However, this article is entitled "The Egg Machine," and not the "Time Machine," so I must not allow myself to take ambitious flights into the future.

To return to the efforts of Macrory and Co. The Cycle Hatcher having performed so well to music, we decided to try it once more, this time in the comparative silence of an unheated greenhouse. The machine brought off a most successful hatch of White Orpingtons this time. The City brooder lived outside in a City coop, and here the young Orps. resided. The weather was bitterly cold, and snow fell heavily on many occasions. In spite of this, neither before nor since have I had chickens that thrived and grew like those Orpingtons. I think they all lived to maturity, as well as developing at a most surprising rate. It was incredible to us that anyone should bother with heated brooders when the fireless could do such wonders. I ordered three more City brooders and started to make my fortune out of poultry. Alas, never again did I achieve results like that marvellous Orpington experience.

On the second occasion, in spite of much milder weather, I lost an enormous percentage of the chicks. They huddled and shivered and sweated and crushed each other to death in their fireless brooder, whilst the few survivors looked, and doubtless felt, almost as miserable as I did. After many efforts with these brooders, I finally gave them up in favour of heated ones. I believe now that the fireless brooder **under a very limited range of weather conditions** is capable of giving results better than can be attained in any other way. The important thing to have is a DRY atmosphere—whether it is bitterly cold or comparatively warm makes little difference so long as the atmosphere is dry. The chickens in a fireless brooder generate plenty of heat, but at the same time they generate plenty of moisture, as is proved by the condition of the litter and the floor beneath the litter, when you let the chicks run out in the morning. Moisture in moderation is doubtless a good thing, but moisture in excess, combined with a fuggy atmosphere, spells trouble in the form of rheumatism and kindred ills. The fireless brooder fails in this country because it is nearly always working in an atmosphere super-charged with moisture. That, to my mind, is the long and short of it.

Meanwhile, in one way or the other, we had gone on accumulating hens. Many of these were ladies of uncertain age, so it is little wonder that the egg records were not satisfactory. But the zeal and determination of the owners knew no abating until, finally, on one historic day (now almost forgotten), we woke up to find ourselves at war with Germany, Austria, Hungary, Turkey, and a few other oddments. Hens and eggs were abandoned, old uniforms and martial weapons were hurriedly disinterred, and the firm of Macrory and Wife dissolved partnership in haste. A spasmodic attempt was indeed made to continue the hen farm during the owner's absence, but a few weeks' experience of hirelings' work convinced my wife that it would be better to go into voluntary liquidation, and the hens were sold by auction at prices averaging about 2s. 6d. apiece.

The net results of about three years' trading showed a balance slightly on the wrong side, which proved that it is not so easy after all to make a fortune out of eggs! even if one **has** been gifted with brains and possesses enthusiasm. **Experience** is also a very necessary item in the outfit.

Followed several years of war, during which shells were much more in evidence than eggs, and Huns needed more watchfulness than hens.

Followed, according to official accounts, Peace with Victory. The precise advantages of the last item seem somewhat doubtful to us survivors, especially when we receive our Income Tax demand from the hands of the gentle Assessors of Inland Revenue. Still, all the best people, permanent officials and so on, assure me that we really **have** won the War.

Returning to the Land of my Fathers, I decided that as my large fowl-house was still standing, it was advisable to restock it. An old Hearson incubator was bought (the Cycle Hatcher having rolled away somewhere during my absence), also I bought a third-hand Tamlin. These two types, as most of my readers know, strongly resemble one another, but, as the Hearson had more gaudy brass portholes and a more dressy appearance, it was always referred to as Lady Hearson, whilst the more humble machine was simply known as Mrs. Tamlin.

I next rediscovered my old friend "Eggs"—now under the able editorship of Mr. Tom Newman—and I proceeded to buy as many back numbers as possible in order to acquaint myself with the various changes which had occurred in the poultry world during my absence. It was evident that we had been progressing rapidly, and were becoming a highly scientific body of World's Workers. No longer did we cast our pearls before the swine or our wet mash in the litter! Carbohydrates, proteins, fats and ashes were discussed with the utmost fluency, though no one had at that time succeeded in taming and making a pet of that damned elusive Vitamine, of which we all talk so glibly. Nevertheless, the advance of science in connection with the common gallinule was very striking to one who, like myself, had been formerly content with putting six hens and an unrelated cock into a box and placing a basket underneath to catch the eggs.

My next move was to book vast numbers of White Leghorn eggs, and to resurrect my four City fireless brooders in readiness for future occupants. The eggs arrived and were duly incubated. Both Her Ladyship and Mrs. Tamlin gave quite good results, and a noble army of white chickens were installed in the fireless brooders. The latter were placed on a shelf in a conservatory, beneath which shelf ran hot water pipes. Small wired runs were fitted to the brooders, and the brooding began.

Meantime, I had taken a helping of Chicken Course, as served out by Mr. Burn Murdoch, who enlightened my ignorance on many points. The chickens throve and did quite moderately well, and eventually we had over one hundred nice pullets. I installed electric light and running water in the long house, and by October had the pullets settled therein. I also fitted the house up with Burn-Murdoch trap-nests, and in the autumn we began to gather egglets from the pullets. That was the winter of 1919—a good one for the egg farmer. Even my small eggs realised five shillings a dozen in those halcyon days, so that by the end of the year those pullets had produced

(Continued at Foot of Column on Next Page).

On Breeding

By G. C. HESELTINE.

(Continued.)

LINE-BREEDING.—I.

In the excellent little supplement to "Eggs" of October 22nd, Mr. Newman defines line-breeding as "the restriction of mating to one line of descent." By this is meant the restriction of mating to the progeny of one original foundation mating, that is to one family—the word family here being used in its common sense and not strictly in its zoological sense.

Thus line-breeding commences with two birds only, one male and one female. It may be commenced with one male and a pen of several females, sisters for example, but as this second case complicates matters somewhat we will confine the present article to the consideration of the case of the single mating.

The object of line-breeding is the formation of a strain with fixed characteristics, a strain which can be relied upon to give stock typical of itself; that is to say, such a strain will contain birds of a uniformly even standard and individuals will differ from one another but very little.

It has been shown in the previous articles on in-breeding that in-breeding tends to fix characters; the closer the birds are bred the less chance there is of variation or reversion to undesirable characters. It will therefore be seen that in forming a strain by line-breeding we are in-breeding in a particular way for a particular purpose. Line-breeding may be termed a methodical system of in-breeding.

Now since in-breeding, and therefore its particular application, line-breeding, tends to fix or intensify both good and bad characters without discrimination, the most important point when commencing line-breeding is the quality of the original pair of birds. If it is kept well before the breeder that every little fault in the original stock may be passed on and intensified in the strain which he is forming, he will realise the absurdity of attempting to form a strain with anything but **exceptionally** good birds in every way. It is not sufficient for them to be just good birds, because individual improvement (if any) gained in line-breeding is very slowly gained. The improvement achieved by good line-breeding is the improvement of the "flock" of birds bred in the strain, in the levelling-up of the quality of the birds bred; or put another way, line-breeding results in the production of a higher percentage of good birds and a lower percentage of culls.

Having decided that only exceptional birds must be used, the breeder must expect to have to seek, and perhaps wait for some time before he obtains, birds of the required standard. The fact that birds may have won prizes at shows or at laying tests is no criterion of their value. They must really excel in the standard points of their breed, or at least in those points which the breeder is desirous of fixing as characteristic of his strain. Members of the S.P.B.A. will no doubt wish to pay considerable attention to the egg yield, and it is not sufficient for this to be merely high, but it must be a steady yield of good-sized and well-shelled eggs. If you wish the colour to be deep, do not count on deepening it much in the course of line-breeding unless you start with good-coloured eggs.

It is a well-known and accepted fact, as has often been stated in these columns, that the visible characteristics of a bird are not its sole attributes. It is essential therefore to know that the birds with which you start line-breeding are well-bred. That is to say, they must have been bred from good stock by a capable breeder and be unlikely to throw back to near ancestors which carried serious faults.

In addition to the foregoing, your birds must be of unquestionably sound stamina and vigour. The risk of weakness entailed in in-breeding and line-breeding makes it imperative that you should start with the best and most vigorous stock possible. It has been generally accepted scientifically (by Darwin among others) that in-breeding in itself does not tend to degeneracy. It may **lead** to degeneracy because it accentuates any weakness which the carelessness or inefficiency of the breeder allows to creep in. But that is the fault of the breeder and not the fault of line-breeding.

It is plain that the selection of such paragons of quality is no mere child's play. It is a matter for a man who knows his job and not for the novice. If the novice should find it necessary to resort to line-breeding he should at least safeguard himself by getting an old hand to see over his foundation stock.

Once line-breeding has commenced everything depends on rigorous selection, first for vitality, stamina, and vigour, and then for the breed or laying quality of the stock you mate. The art of successful line-breeding hangs on the art of selection. Here again it is not novice's work. Some have an "eye" for a good bird, others acquire one after years of practice. The point here is, that for line-breeding you must have an eye, or rather two eyes, and those good ones.

There is often a temptation in work of this kind to use an exceptionally good bird which may be a little lacking in stamina. Nothing is more fatal. Rigorous selection is absolutely essential, and it cannot be too often insisted upon.

(To be continued.)

THE EGG MACHINE—Continued.

£100 worth of eggs, thus paying all their rearing expenses and leaving a handsome profit. Even the cockerels had acquitted themselves nobly, selling for prices up to 2s. 8d. per lb., live weight. In spite of dear feeding, 1919 was a great year for the poultry-keeper. Here endeth the third lesson.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to question either by post or through these columns, except in relation to Post-Mortem Examinations.

A. M. F. (Inverness). I am sorry I cannot repeat my kindness and answer you again by post as you are not a member of the S.P.B.A. I am pleased to hear that since you have taken "Eggs" you have increased your eggs from the same number of hens by about 1,800 eggs in a year, and that the advice I gave you about feeding has helped you the most. I cannot tell you where you could get the foods you require. It would be far better for you to buy locally as you cannot afford to send away for such small quantities. It would be far better not to allow the cockerel to run with your pullets. I do not know that they would have more courage to go to the woods, where there are so many cats about, if there were a cockerel with them. Of the samples of food you send, the middlings at 13s. are very good indeed; they are equal almost to a low-grade flour. Those at 12s. are not so good. The bran No. 1 is a good sample, but the price, 13s. cwt., is very high. That at 10s. is far better value, and I would advise you to use it. The ground oats at 21s. are not "Sussex" ground; they contain a high percentage of barley, and as the cost is so excessive, I would advise you to use the lower grade sample of middlings, and replace the ground oats with the sample of middlings at 13s. cwt. This should give you equally good results. The maize meal is too coarsely ground. There is not much to choose between the two samples, so I should take the cheaper. The grain mixture is just fair.

S. T. (Shrewsbury). Sample "B" of sharps at 13s. is very dear, and contains too much bran. Sample "S.F." is just about the same. Really these prices are exorbitant. "R" is better, but at 14s. is a lot of money. The "Imperial" Sharps at 13s. contain a a lot of ground-over bran. A most unsatisfactory lot of samples at top prices. The ground oats at 16s. are good value. The fine biscuit dust at 19s. is just fair. The Gluten meal is above the average quality, but you will remember that I have repeatedly warned readers not to use this owing to the unsatisfactory samples, which are causing injury to the birds. Yes, I think we could make you up a cheaper mash than the one you are using. As you particularly want it for layers, increase the sharps to four parts, omit the biscuit meal, and use one part of the ground oats, one of maize meal, and $\frac{3}{4}$ part of fish meal. The quantity you are using now is very excessive. You will see this is considerably cheaper than your own formula, and you could cheapen it still more by using a good sample of meat and bone meal, which would only cost 20s., and would give equally good results. I do not think you can give your birds anything to "buck them up." They ought to do well on this mash. As a wet mash for your breeding stock you could use: Four parts middlings, one ground oats, one biscuit meal, and half meat and bone meal or fish meal. I am glad to have your appreciation of "Eggs."

L. H. G. (Hereford). Yes, it is quite sufficiently established that if a R.I. Red male is mated to a white female the sex of the chicks can be determined at hatching, and with such a cross one would be able to guarantee the sale of the day-old pullets. Of course, there may be one or two mistakes, but those should be very few. Yes, a similar distinction would be noticeable in the cross between R.I. Red cockerels and Light Sussex hens, because the Red represents the gold and the Sussex silver.

"Corbett" (Salisbury). As a result of the bullying the pullets have received from the hens they would appear to be under-nourished, and will want a good deal of picking up. The best mash for the purpose now would be:—One bran, four middlings, one maize meal, one S.G.O., and one meat and bone meal. Give as the grain equal parts wheat and maize, and, if possible, give them one feed a day of the following:—Take a sufficient quantity of good plump, white oats, cover with cold water, and alow them to simmer on the fire until all the water is absorbed, then dry off with middlings, and feed them in troughs, allowing the pullets as much as they will eat. This would be a good feed to give as the last one, giving the grain at mid-day, to get these birds into condition. I do not like giving dry mash formulas by measure. There is so much difference in the weight of different measures that I would much prefer the carelessness of any poultry lad in weighing.

"Doutex" (Fawkham). Yes, you could use Lucerne meal in place of alfalfa in the mash. There is practically no difference between them. You could, of course, use it in the same proportion.

L. H. W. (Bridport). I do not think the land would be too damp for large flocks, as you say it is well drained, and the trees are 14 ft. apart.

The drip from the trees would not hurt as your houses are 30ft. x 15ft., and the birds would always have access to these. You could face them east, but I would rather prefer them south-east if it were possible.

"Fortune" (Axminster). It would not be advisable to make any change in the feeding of your turkeys until about a month before they will be required for market. Then they should be confined at night in a large open-fronted shed, in a very quiet position. It is best to liberate them every day to prevent them from fretting from confinement. If sour skim milk is available or buttermilk it is important that it should be used, as this gives the best colour and mellowness to the flesh, and the acid in the milk stimulates the appetite when it may otherwise fail during the final process. S.G.O., wheat meal or barley meal, and sharps are the best food stuffs, and cooked potatoes may also be mixed with the mash. Use the sour skim milk or buttermilk to mix the meals into a crumbly moist condition. They should be given cooked meat twice weekly, which should be incorporated in the soft feed. It should be finely chopped and the liquor used in place of the milk for mixing the meal. Rice boiled in milk is a splendid fattener, and helps to whiten the flesh. In the evening feed give wheat, oats or barley. It is better not to give maize. A little charcoal will help in digestion. It will be better to separate the cockerels to prevent fighting.

"Doubtful" (Pickering). I cannot understand your birds being in such a light condition on the mash your are giving. If the bran is so poor the better plan would be to omit it and replace with another part good sharps. Are you satisfied with the quality of these latter? You could hardly feed potatoes in place of bran. There is no comparison between the two, but if you like to incorporate one part potatoes in the mash and increase the meat meal by quarter part this could be done to improve matters. Are you perfectly satisfied that the birds are free from insect life, and that there is no red mite?

W. C. S. (Oakley). Certainly you could use some of the 1922 hatched birds for your breeding pens. Why should you not do so? They will not come on to lay quite so early as the others, but if you keep them in good condition they will breed some healthy and vigorous chicks. (2) Yes, alfalfa meal and swedes will be the best substitute you can use for green food during the winter months. Well, I suppose geese would be the best thing to keep the grass down amongst your trees. Sheep would probably do too much mischief. I do not think ducks would answer so well. The rules of the S.P.B.A. do not permit us to reply to non-members of the association unless a fee of 2s. 6d. is enclosed.

"Novice" (Earby). It is very disappointing to be served such a trick as you have been, more particularly as you asked for a male bird from a large-egg dam. The results are rather surprising. Presumably this bird is from an early maturing hen, and he has brought this factor into your stock, with the result that you have very small eggs. Under the circumstances, I could not recommend you to use cockerels bred by him. It would be running a great risk.

E. B. S. K. (Knaresborough). With respect to the droppings. Unless you could dry them properly and find a near market, I do not think you could sell them at a profit. Tomato growers will sometimes pay up to £4 a ton them if they are properly dried, and do not contain a lot of litter, but big fruit growers do not care to take less than twenty tons. The formula you give contains rather an excess of bran. It would be well to reduce this to 2 lbs. It would then give equally good results as a more expensive formula. It is not necessary to scald the wet mash the day before using. You could make it an hour or two before you want to use it, cover it with an old sack or something of that kind, so that the heat may be retained. The best way would be to scald all the ingredients except the bran, and reserve this to dry off the other ingredients with to a crumbly moist condition. We are sending you particulars of the S.P.B.A. by post.

POST-MORTEMS.

G. T. The post-mortem examination of the pullet showed the cause to be gout, the kidneys being so blocked with urates that they could not perform their functions of eliminating waste materials from the system, the result being uraemic poisoning and death. Deposits of urates were found on the liver, intestines, and on the heart, but in this particular case the action of the latter organ had not (as is frequently the case) been seriously interfered with. Gout is a dietetic disease pure and simple, but the predisposition to it may be hereditary. Reduce the ration of grain somewhat, allow more green food and give twenty grains of Epsom salts per head, either in water to drink or in the mash, every day for a week or ten days.

D. L. The lungs and ovarium were in an apoplectic condition in this pullet. There was also an egg in the oviduct, but no inflammation of that organ. The carcass was well nourished, in fact in a state bordering upon plethora, in which condition apoplexy is liable to occur. We would suggest reducing the fat-forming constituents of the ration, giving more green food, and a weekly dose of glauber salts, fifteen grains per head, given either in the mash or drinking water.

E. G. The W.L. hen suffered from an auto-intoxication, through death of the ovarium, or the greater part of it I should have said. The yolks most developed had died on the stem, and the decayed matter had been absorbed into the blood. She was certainly too fat, and over-stimulating food may have contributed to precipitate the trouble, but a coccidium was found on microscopic examination of the contents of one of the decayed ova. A fast is recommended, and a week's treatment with catechu, one dram, to each gallon of drinking water, and after that a daily dose of fifteen grains of sulphate of sodium each morning.

E. F. The post-mortem examination of the fowl showed the cause to be an acute inflammation of the kidneys, which resulted in the damming back of the urates, causing uraemic poisoning. With no available data to go on, we are unable to advise as to feeding or treatment. Full particulars should always be sent with a carcass for post-mortem examination.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

FIFTH MIDLAND LAYING TEST.

The Fifth Midland Egg-Laying Test, conducted by the Midland Federation of Feather and Fur Societies at Birmingham, has recently terminated, and excellent results in all sections are announced—in fact, the attainments are the best so far achieved.

The figures of the leading competing birds in each section are given below, the length of the test being 336 days, or twelve lunar months.

Considering the heavy rainfall this year, the erratic temperature changes, particularly where the Midland is situated, the birds have done splendidly.

The average health record has been very good, with mortality about 6 per cent. of the flock, the deaths being due principally through ovarian derangement.

The highest individual and pen record has been accomplished in the White Wyandotte Section, where the leading pen has laid an average of 274 eggs per bird, the highest record being 314 eggs. This was followed by another heavy scoring pen, which averaged 252 eggs per bird for the twelve lunar months.

On Monday last, November 3rd, the Midland Test for the sixth year in succession commenced with a record entry in the small house section of over 500 birds. The stock have all arrived, all sent by specialist breeders of note, and spent a few days preparatory to official starting date, getting accustomed to their new quarters. From the look over the birds, splendid quality is to be observed, and it will not be surprising if even further records are created.

Final Report of Three Leading Pens in each Section, Oct. 4th, 1924 (336 days). Wyandotte lays 314 eggs.

White Leghorns.—Councillor J. W. Thompson, Beverley, 822 eggs; C. H. Hudson & Son, Coventry, 739 eggs; E. M. Saul, Ross, Herefordshire, 774 eggs.

White Wyandotte.—H. W. Gee, Lickeys, near Bromsgrove, 1097 eggs; Fowler Bros., Earlswood, B'ham, 1011; Ashbrookes & Brookes, Sandbach, Ches., 819 eggs.

Rhode Island Reds.—Major E. T. Kingscote, Newport Pagnell, 740 eggs; Easton Poultry Farm Co., near Norwich, 766 eggs; Mrs. E. King, Erdington, B'ham., 721 eggs.

Light Sussex.—Fred Gardner, Stalham, Norfolk, 707 eggs; F. R. Welch, Bewdley, Worcs., 657 eggs; Mr. & Mrs. Jacobs, Walderslade, Chaltam, 613 eggs.

A.O.V. Light Breeds.—M. H. Brady, Edgbaston, B'ham. (Ancona), 746 eggs; G. C. Woodbridge, Great Shelford (Ancona), 603 eggs; Blaksley & Blythe, West Moors, Dorset (Black Leghorn), 615 eggs.

A.O.V. Heavy Breed.—H. Thomas, Wardle, Lancs (Buff Orps.), 639 eggs; W. Hamnett, Blackpool (Buff Rocks), 613 eggs; A. Bird, Redditch (Buff Rocks), 593 eggs.

LAINDON LAYING TEST.

FIRST REPORT (OCTOBER 18th to 31st).

Section 1.—Light Breeds (5 pullets).—F. Freeborn (W.L.), 30 eggs; T. Miller (W.L.), 26 eggs; H. Maycock (B.L.), 28 eggs.

Section 2.—Heavy Breeds (5 pullets).—Thompson (R.I.R.), 37 eggs; Willis (R.I.R.), 19 eggs; Corney (R.I.R.), 17 eggs.

Section 3.—Light Breed (single bird).—W. Belsham (W.L.), 11 eggs; W. Dillinz (W.L.), 7 eggs; W. Dillinz (W.L.), 7 eggs.

Section 4.—Heavy Breed (single bird).—C. Sheridan (W.W.), 12 eggs; F. Freeborn (R.I.R.), 9 eggs; F. Freeborn (R.I.R.), 8 eggs.

Section 5.—Any Breed (gift).—H. Maycock (W.W.), 11 eggs; E. Bazin (W.L.), 8 eggs; F. Freeborn (R.I.R.), 8 eggs.

Scientific Poultry Breeders' Association.

CRYSTAL PALACE SHOW.

The Crystal Palace Show of Poultry, Pigeons and Rabbits is to be revived in all its glory on November 18th, 19th and 20th.

The entries this year total 12,422, some 248 more than last year, and they include some from Spain, France, Belgium, Holland and the Channel Islands.

Sussex heads the list with 500 entries, Wyandottes follow with 372, R.I. Reds have not a very large entry—only 167, but Orpingtons are well up with 236. La Bresse appear to be coming more popular as there are 77 entries, while Minorcas do well with 144. Campines seem more popular than Anconas, for the entry is much larger.

The S.P.B.A. Stand will be Nos. 45 and 57, and will have its usual attractive features. Members of the Council and the Secretary will be in attendance on all three days, and will be pleased to welcome all members.

KHAKI-CAMPBELL DUCKS.

On our front cover of October 29th issue was depicted a photograph of a Khaki-Campbell duck, the property of Capt. R. A. Long, of Stondon Manor, Shefford, Beds. The official record of this duck in the National Laying Test was 323 eggs for the year, and she was a dam of four of the ducks of the pen which has been leading all sections of the Duck Test at Bentley for the last four months.

Capt. Long has been very successful as a duck breeder.

For the last three years, at the National Laying Test, his pens of Khaki-Campbell ducks have been in the first three of the whole test. Last year his two pens won the Cup for the highest aggregate score for ten birds, with a wonderful average of 254 eggs in 48 weeks. This year his pen led all sections for seven months, and was beaten by 10 eggs in the last fortnight by Indian Runners, but he won the Breed Cup, and that for the Small Flock Section, with an average of 259 first-grade eggs. Last year one of his ducks held the highest individual record at the Northern Test, Burnley, with a score record of 261 eggs, which actually averaged 3 ozs. in weight.

In the Utility Section at the World's Poultry Congress, Barcelona, Capt. Long had a representative pen.

Capt. Long has the world's record of a pen which averaged 276.8 eggs per bird.

Great efforts are being made by this well-known breeder to improve the colour, markings and size of the birds without loss of egg yield, and at Birmingham last year his duck won First in the Special, and the Drake Third in very strong classes, and in the previous year his Drake was First, so that he is combining utility and breed type.

SEX-LINKED CROSSES AND EGG PRODUCTION

I notice in Mr. Toovey's letter, which appeared in last week's issue, that he has no use for sex-linked crosses, and does not believe that they are as good as the ordinary cross for egg production. Presumably he is speaking from experience, and I can only do so from report, and these reports indicate that the results vary very considerably. It is a bit confusing, too, because it seems to knock so many ideas on the head. In one case, a reader who had a flock of utility Light Sussex, selected some of his best layers with excellent records, and mated them to a Brown Leghorn male, bred from a hen with a record of 244, bought from a breeder whose reputation is unimpeachable. The pullets proved altogether disappointing, the flock average being less than 140 eggs, and the winter yield, to use the owner's word, "disgusting." In another case, where a similar cross was used, on a flock where no selection was made, and the male was not bred from an individual hen or from trap-nested stock, but was simply selected because of his vigour, the results were surprisingly good. Many of the pullets laid at five months old, and they did well during the winter. When I saw him in July, the owner spoke most enthusiastically of the cross, and remarked that they had paid him "hand over fist," whatever that may mean. I cannot remember whether Mr. Toovey has tried R.I.R. males and White Wyandotte females. With one or two exceptions, the reports of these have been exceptionally good, particularly as to winter eggs, but there have been many complaints of broodiness. It is surely very little to anyone's advantage to cross two light breeds. I agree with Mr. Toovey, one cannot afford to hatch chicks and bury them the same day.

LAKENVELDERS.

In the "Poultry Tribune" I read a very interest-account of this breed, which in this country seems to have almost disappeared. There was one on show at Olympia last year, but it was badly benched and was not very attractive. A reputation for lack of stamina probably killed any chance they had of becoming popular here. Certainly a good specimen is a very handsome bird, the solid black plumage of the head, neck and tail, making a striking contrast to the pure white body. They are of German origin, and the name is said to be derived from "Laken" (German, a white sheet) and "feld" (German, a dark field). It is claimed that they excel because :—"They are great foragers, and require little feed. They are good for backyard pens—stand confinement well. They are Europe's 'Everlasting layers.' They are not wild and nervous, like many egg breeds. They rarely become broody, easily broken up; they develop and mature quickly. They are exceedingly beautiful; they are highly profitable."

Omitting the word "Europe" I think I have heard this said of every breed which exists. We really want a little originality when describing a breed; whatever its merits, the Lakenvelder had short shrift here, and there seems not the slightest possibility of its ever attracting more than passing attention.

THE INTENSIVE SYSTEM.

I think the only difference of opinion between Mr. Toovey and myself, on the question of the intensive system, is that he has a definite idea that, having proved a failure, it is not worth further investigation; and I agree with him in so far that I admit that it has failed, but contend that no satisfactory explanation of that failure has ever been given, and that there is room for further experimental work, particularly in view of the disastrous breeding seasons experienced during the last three years. But I cannot agree with him that the birds would lay less eggs, or that the cost of labour will be double because of the necessity of providing extra green food. On the intensive system you will get more winter eggs, and a great cause of the drop in the summer egg yield of intensively kept birds is the absurd mistake made by so many people of facing houses due south. I have been in some of these houses in the hot summer months, and seen the birds with their wings drooping and their mouth open, a very picture of suffering. So many people fail to realise what an enormous amount of harm is caused by the exposure of the birds for a few hours to such heat that they get into such a state as this. One must be guided by circumstances, but, generally speaking, the correct way to face a house is south-east, not due south. I remember the plant to which Mr. Toovey refers, but we must remember, too, that a very large number of people took up intensive poultry-keeping without knowledge or experience. In such weather as we have had during the last six weeks, who will not agree that the birds would be far better if kept intensively, and I am strongly of opinion that egg production would be greater during the winter months if birds were kept intensively from mid-October until the end of March. However, we can only investigate, and it is worth the trouble.

With regard to longevity, we have numbers of individual hens which are profitable for four and even five years. It is hardly so much a question of longevity, as many hens will live that number of years, but their life is not a profitable one. Let us call it "persistency," and I think we must start by acknowledging that this persistency is not a question so much of the constitutional vigour of the individual, as of its inherited fecundity. Is not the real problem—whether a hen which lays, say, 500 eggs in four years, is a more economical proposition than one which lays 300 in two years? There is the cost of replacement, and the fact that the eggs of the older hens owing to the failure to produce during the winter months are of a lower value.

APPLICATIONS FOR MEMBERSHIP.

Thornton, Mrs. E. F., Hinton P. Farm, Berkeley, Glos.
Ringstead Downs Dairy and Poultry Farm, E. M. Dewar, Sec., Ringstead, King's Lynn.
Hardy, Mrs., Lattiford, Wincanton, Somerset.
Robinson, Mrs. Ella, The Vicarage, Potters Bar, Middlesex.
Rotherford, Capt. R. W., D.S.O., M.C., The Pines P.F., South Dissington, Ponteland, Northumberland.
Plummer, D.S.O., Maj. M. V., Becketts Grove, Watfield, Paddock Wood, Kent.
Robertson, Geo. MacRae, Cumberland and Westmorland Farm School, Penrith, Cumberland.
Harman, Miss Winifred, Clovelly, Abbots Langley, Herts.
Wilkes, F. W., Whitegate, Longmore Lane, Shirley, Nr. Birmingham.
Arkell, Edward J., Rose Cottage, Stow S. Mary's, Chelmsford, Essex.
Tibbitts, Edward, Highlands P. Farm, Ltd., Henley-on-Thames.
New Town Agricultural Guild, Ltd., Welwyn Garden City, Herts.
Champion, P. H., Coombe Farm, Maidstone.
Williams, F. J., M.P.C., Grandon Lodge, Holmwood, Surrey.
Murdoch, Gilbert M., Clan Chattan P. Farm, Hellingley, Sussex.
Kensman, J., Highfields P. Farm, Edenbridge, Kent.
Howard, Geo., Folley Road, Stotfold, Beds.
Lucas, Nathaniel S., 19, Westbourne Terrace, W.2.
Saint, Stanley O., Woodlands Farm, Nr. Chingford, Essex, E.4.
Curtis, H. P., Vane Court, Biddenden, Kent.
Maye, J., 119, Fielding Road, Bedford Park, W.4.
Warrilow, W. J., Woodland P. Farm, Meir Heath, Blythe Bridge, Staffs.
Collinson, Jonathan, Lingart P. Farm, Garstang.
Johnston, Mrs. Gertrude, "Adastra," Dulwich Road, Little Holland, Clacton-on-Sea.
Boswell, R. M., Sacombe Ash House, Sawbridgeworth, Herts.
Dobson, R. E. J., 144, Pomeroy Street, New Cross, S.E.14.
Cobby, A. H. L., Brookside, Felpham, Bognor, Sussex.
Rankin, H., Crudgington Manor, Nr. Wellington, Salop.
Lucas, Miss B. E., The Causeway, Potters Bar, Middlesex.
Rugman, Miss A., Wibdon P. Farm, Tidenham, Nr. Chepstow, Mon.
Young, W. H. D., Mardley Hill, Welwyn, Herts.
Harland, Fred, Eastern Way, Ponteland, Northumberland.
Marsh, S. J., Pedigree P. Farm, Sudborough, Thrapstone.
Gross, Basil J., Corton Lodge P.F., Burntwood Avenue, Emerson Park, Hornchurch, Essex.
Brewster, J., Ruffmead, Hoveton, St. John, Norwich.
Rossiter, R., The Home Farm, Biggleswade, Beds.
Sugars, Harold, Featherfield P. Farm, Selston, Notts.
Hildred, Edward c-o Mr. Scott, Hykeham Road, North Hykeham, Lincoln.
Brown, David, Maisiewood, Colston, Bishopsbriggs, Glasgow.
Basham, Mrs. M., Langley Hall, Newport, Essex.
Squires, H. J., 14, Ossory Road, Camberwell, London, S.E.1.
Brittin, W. G., Starefield Lodge, Rushden, Kettering.
Crowley, Geo. A., The Bungalow, Thirtlebridge, Withernsea, E. Yorks.
Shaw, Edward, Old Ned's Farm, Bradshaw, Nr. Bolton, Lancs.
Symes, John, Little Close, Stormsdown, Nr. Ashburton, Devon.
Harvey, G. V., Lynmoor, Papplewick Lane, Linby, Notts.
Beazley, Mrs. A. A., Forest Row, Sussex.
Cross, F. H., Bralo, Malmesbury, Wilts.
Walbank, John, Shear Brook P. Farm, Rishton, Nr. Blackburn.
Groves, Ed. G., The Stores, Kilcote, Nr. Newent, Glos.
Tolhurst, A. E., East Moor St. Farm, Rainham, Kent.
Lomas, Gerald H. S., Haylands, Chigwell, Essex.
Goodall, Wilfrid, Worting, Basingstoke.
Holmes, Harry, Whitchfield P. Farm, Shelf, Nr. Halifax.
Greenwood, J. O., Honey Hall Farm, Oakworth, Nr. Keighley.
Mitchell, H., Oldfield Farm, Pickles Hill, Oakworth, Nr. Keighley.
Wiseman, A. S., Glenside P. Farm, Brassie, Ayrshire, N.B.
Hargreaves, B., Stud Farm, Royd Meltham, Nr. Huddersfield.
Spooner, J. Doug., Holgate P. Farm, Holgate, York.
Gollup, Geo. John, White Gate, Broadwindsor, Dorset.
Parrington, M., The Limes, Gt. Ashfield, Bury St. Edmunds.
Sankey, J. Malcolm, Astley Abbotts, Bridgnorth, Salop.
Courtis, Mrs. E., "Taly-Cafn," Augustine Road, Drayton, Hants.
Grehan, Miss Rita, 7, St. Mark's Road, Dundalk.
Polhill, S. F. P., Mau Naroh, Elementeita, Kenya Colony, B.E.A.
Rayner, A., Upper Clay Royd, Southowram, Halifax, Yorks.
Cross, Capt. J. K. C., St. Marys, Thruxton, Andover, Hants.
Cartwright, Harold E., New Cottage, Yalding, Kent.
Thirkell, E. A., 110, Sandgate Road, Folkestone.
Wickings-Smith, Bros., Hillside P. Farm, Clapham, Beds.
Hardman, J. S., Sunnycott P. Farm, Moor Monkton, York, Yorks.
Gilchrist, Jas., Law, Sandford, Strathaven, Lanarkshire.
Milne, John, Dunesslin, Dunscore, Dumfriesshire.
Eastwood, J. H., 20, Victoria Avenue, Elland, Yorks.
Dingwall-Fordyce, Mrs. A., Taynton, Burford, Oxon.
Hayes, Geo., Drayton House, 96, Kingsbury Road, Gravelly Hill, Birmingham.
Wild, Reg. F. E., "Ulmi," Theddlethorpe-St.-Helen, Louth, Lincs.
Wilson, Miss, Newnham Green Farm, Basingstoke, Hants.
Nettell, R. G., Trevenner, Adgestone, Brading, I.O.W.
Thomas, Lt.-Col. and Mrs. G. E. Venning, Three Yews, Ashill, Ilminster.
Pinches, R., Ashlyn P. Farm, Tipton Road, Sedgley.
Steele, Richard Jas., Homalin Utility P. Farm, Loanwath Road, Gretna, Dumfriesshire.
Parrish, Miss H., East Brook Farm, Eastbrook Ends, Romford.
Durston, A. S. W., The Poplars, Harlow Common, Essex.
Johnston, R. A., The Cotswold P. Farm, Chalford, Glos.
Thomson, Hugh (Manager), Equitable Agricultural Productive Soc., Ltd., "Weewood," Broadloan, Renfrew, N.B.
Brewis, Maj. A., Polhampton, Overton, Hants.
Jackson, Herbert, Moor End P. Farm, Haworth Brow, Keighley.
Harrison, Herbert, Laurel Grove, Silsden, Keighley.
Simpson, Fred. R., Sladen Bridge, Haworth, Keighley.
Smith, Mrs. H., Kirklands Farm, Baildon, Nr. Shipley, Yorks.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000-hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex. The Financial Year began on 1st September.

MRS. RAWSON'S MARRIAGE.

To the Editor of "Eggs."

Sir,—Many members of the N.U.P.S. are desirous of taking part in the presentation to Mrs. Rawson, now Mrs. Low, whose wedding was November 1st.

The gift will be made on the evening of November 27th, at the Royal Horticultural Hall, Westminster, the third day of the N.U.P.S. Show.

Mrs. Rawson is so well known and has done so many acts of kindness to others who are not members of the Society that it is believed they also would like their names to be associated with this act of courtesy.

Donations, however small, may be sent not later than November 14th, to—

(Miss) N. H. BELL.
Hazeldene, Ightham, Kent.

Utility Duck Club Notes

By HUGH B. CARRINGTON.

The Dairy Show having already faded into the past for the majority of people, it is to be feared that there may be some who will expect these notes to be lengthy and full of information. I am sorry to disappoint them, for even yet there is a considerable accumulation of work arising out of the Show which remains to be done. However, there is time for a word or two about the results obtained at the Club Stand. First and foremost, there is an increase of about fifty new members to report, and, judging from the immense number of enquirers who came to the Stand, there are many people interested in ducks who are still a little shy of taking the plunge and becoming members. There really is nothing to be alarmed about, if anyone does join we do our level best to be of real service to him or her, and never to let the expenditure of the 5s. membership fee be a source of regret.

It is a pleasure also to report that the scheme for distribution of first-class sittings of eggs, at very cheap prices, to beginners with ducks has been most successful. The number of applicants was very considerable, and, as a matter of fact, had it not been for the generosity of those who had already offered sittings, and now offer more, and others who have subsequently offered them, they would have all gone at the Show, as it is there are still some for distribution to new members who are also beginners.

Apart from these results, the writer personally learnt several important lessons at the Show. One only need be mentioned here. There was on the Stand an exhibit of two bowls of eggs, the one showing how eggs ought to be marketed, the other how they ought not. Many egg dealers, dairymen and others called at the Stand. Naturally the well-graded and clean eggs were universally admired. Several of these gentlemen, whose business it is to retail the eggs, volunteered the information that they would like to get a guaranteed supply of eggs such as these, and would give 3d. to 4d. a dozen more for them than for the others, but what was far more remarkable, they mentioned that the exhibit of "ought nots" was far too good—in fact, that the eggs were much too clean and that they often received consignments in infinitely worse condition.

The lesson is obvious—namely, that it is possible to get a good price for clean, well-graded eggs. It must be admitted that the comments on the other eggs being too clean surprised me enormously. I can hardly believe that any members of the U.D.C. would send their eggs out dirtier than those were; at least, I hope not, but it is clear that some people do, and then perhaps they wonder why prices are not good.

It is, of course, a known fact that duck eggs sell better in some areas than in others. Nevertheless, badly marketed duck eggs will fetch a bad price anywhere, and it is clear that there are still a good many duck-keepers about who do not realise the vital importance to themselves and the industry of marketing a high-grade article.

In the light of information kindly supplied by members re prices prevalent in different parts of the country, and of experience gained at the Dairy Show, I shall hope to deal with the subject of markets and marketing at no distant date, either in the Year Book or in a leaflet.

In the meanwhile I would suggest that now is the time, if it has not already been done, to push your duck eggs, and to make definite arrangements for the disposal of the whole output throughout the coming season, remembering that in the flush season a flock of ducks may be expected to go very near to producing 100 per cent. of eggs daily. Eggs are scarce now, and the producer is far more likely to be welcome to the retailer during this month than when supplies are more plentiful.

It may be that some duck-keepers are not getting the eggs from their birds which they ought to be getting, at this, much the most profitable season of the year. Members of the Club will find plenty of information on feeding for eggs in the U.D.C. literature. Non-members may purchase this literature, but it would pay them better to become members, for apart from literature they would then have the advantage of being able to seek advice by personal letters, to meet their own particular troubles.

UTILITY DUCK CLUB.

ANNUAL GENERAL MEETING.

The Annual General Meeting of the Utility Duck Club was held in the Club Room at the Agricultural Hall on Wednesday, October 22nd, the President, Mr. Stanley Street-Porter, in the chair.

Mr. Stanley Street-Porter, in opening the proceedings, spoke of the great possibilities there evidently were for the future of the duck industry, which, as far as the Club was concerned, had made great advances, the membership having increased threefold during the last year. Further progress was largely in the hands of the members themselves, they could materially help through propaganda work by still further increasing the membership and in many other ways.

He went on to point out that it was of great importance for duck keepers to obtain better prices for their eggs. This question was never lost sight of by the Council, whose policy it was to do everything which was possible to increase the popularity of the duck egg with the public. He had great faith in the industry, a faith which he felt sure would be justified by its future history.

The Hon. Secretary and Treasurer, Mr. H. B Carrington, then read the balance sheet for the past year. He was glad to report a satisfactory financial position, but explained that as the work of the Club increased, the need for more cash resources became still more urgent if the services which the Council aimed at giving its members was to be maintained. He instanced, as an illustration of the increased expenditure, that the postage account had considerably more than doubled, that the printing and stationery account showed a far high figure than before, and that there would be payments in respect to cups, medals, etc., given by the Club for the Public Laying Test considerably in excess of the expenditure of previous years.

It was proposed by Capt. Pollen, and seconded by Mr. Chas. C. Chittenden, and carried unanimously, that the financial statement and report be adopted.

A letter was read from Mr. Barnes Reeve regretting that, owing to illness, he was unable to be present, and expressing the wish to give up his place on the Council to some later comer to the industry. The Secretary was asked to write Mr. Reeve expressing the meeting's hope that he would soon be restored to health, and also hoping he would continue to remain a member of the Council.

There were only two vacancies on the Council to report, due to the resignation of Mr. Harold Paine and Mrs. Nash; Miss Crawford and Mr. H. S. Godsmark had been nominated to fill these.

Proposed by Miss Barabara Raye, and seconded by Mrs. Carrington, that Mr. H. S. Godsmark and Miss Crawford be elected members of the Council.

Proposed by Mr. Oscar Brown, seconded by Capt. R. A. Long, and carried unanimously, that Mr. Street-Porter be re-elected President.

Mr. Street-Porter, in accepting the office, stated that his enthusiasm for the Club and Industry was unabated, and that he would always do his best to further their interests.

Proposed by Mr. Street-Porter, seconded by Mr. C. S. Roscoe, and carried unanimously, that Mr. Oscar Brown be re-elected Vice-President.

A member suggested that a table of contents should be included in the next Year Book, Mr. Carrington promised that this should be done.

On the proposal of Mr. Chittenden, seconded by Mr. G. H. H. Simmons, it was agreed that a Cup Fund should be opened.

Mr. Oscar Brown, in a brief speech, mentioned the very cordial relations which existed between the Duck Branch of the Poultry Industry and the Poultry Industry generally. Duck breeders owed a great deal to the kindly help which had always been extended to them, and he hoped these relations would long continue to exist. With regard to future recruits to the industry, he hoped they would not be persuaded to sink large sums of money in the venture till they had gained the necessary experience.

A member asked whether it would be possible for more articles on Ducks to appear in the Poultry Press? Mr. Brown explained that arrangements had been made by the Council for members to write regularly for the different papers, but that it was not always easy to ensure the regularity in practice.

A discussion on Incubating Duck Eggs followed; among the speakers were Miss Harrison Bell, Mr. Brown and Capt. Long. It was unanimously agreed that in the hands of experienced people splendid results could be obtained from artificial incubation, and that even novices, if they were very careful to obtain the best advice on the subject, could expect reasonable success.

The question of supporting Utility Classes for Ducks at Shows was raised. Capt. Heseltine suggested that this was a question which concerned the Breeds Clubs rather than the U.D.C.

Mr. Chittenden raised the question of the "East More Eggs" campaign. The President explained that the matter was now before the Poultry Council, but that before any definite steps could be taken it was necessary to raise a nucleus fund of £500.

The meeting closed with a vote of thanks to the Hon. Secretary for his work during the past year, and also a vote of thanks to the British Dairy Farmers' Association for their kindness in putting the room at the disposal of the Club.

Turkeys.

THEIR FEEDING AND REARING.

By BERNARD REDDAWAY, M.S.P.B.A.

The coop should be put in a sunny spot, facing south or south-east. It must, however, be sheltered from the cold winds. If necessary a sack should be put over it during the night, in such a manner as to keep the chicks warm while allowing them plenty of fresh air.

After the first week the coop should be moved every day, because it is not advisable for the young chicken to run out on to the ground which has been fouled by them previously.

For the first ten days the mother hen should be confined to her coop, but after that period she may be allowed out every day for a short time. One hour a day is quite long enough for her to be out at the beginning. But by the time her chicken are three weeks old she should be allowed out with them for the whole day.

The chicks must on no account be allowed to run in among long grass, for it is usually wet, and a chilling very often proves fatal to them when they are young.

From the time that they are one week old until they "shoot the red" the following diet should be given to them:—40 per cent. S.G.O., 40 per cent. best middlings, 10 per cent. maize gluten (this must be of high quality, too much of the present meal sold as maize gluten is not fit to feed to any poultry from which good returns are hoped for), and 10 per cent. meat meal (scalded). These meals should be mixed into a crumbly state with milk, if it is obtainable, otherwise water. Meat scraps should be given to them whenever possible instead of meat meal. These scraps should be boiled before being fed. They need three meals of soft food every day, and one of hard food. The same grain feed as recommended in the last article will be very suitable for them until they are six or seven weeks old.

So many people think that all poultry which are destined for the table must be fed from the very beginning on fat-forming foods. This is a very grave mistake, because although about a month before killing they want to be put on to the most fattening foods; before that time they need to have a ration very similar to that which is fed to birds which are raised for egg-laying only.

Another advantage of feeding for frame, at the beginning, is that any birds which shape out very well can be kept for stock; whereas, if they are fed for fat from the start, they can never be used with success for breeding purposes.

The motto of all table poultry producers should be "Frame First." It stands to reason that unless the bird possesses a large strong framework of bone, on which to carry the flesh and fat, it can never be brought to the maximum weight it is possible for it to attain.

Directly the growing chicken begin to overcrowd the coop they must be moved, with their mother if necessary, to a large airy house, the floor of which should be well covered with several inches of soft straw or clean chaff. The house must be draughtless, but it must also be well ventilated.

(To be continued.)

(Continued at Foot of Previous Column.)

TURKEYS.—Continued.

Correspondence.

VENTILATION.

To the Editor of "Eggs."

Dear Mr. Newman,—The articles appearing in "Eggs" by Mr. Somerville are extremely interesting and suggestive. His "Apex" house is somewhat novel in many respects, but it seems to me there is one defect, viz.: That any strong winds will cause a through draught across the floor of the house, as the ventilators are situated on opposite sides close to the litter. A remedy, I think, would be to fix a board a few inches from each ventilator, on the inside. This would prevent a rush of air across the floor, and would not injure the ventilation to any great extent. A house of this type means a considerable saving in timber, e.g., one 12ft. broad with 8ft. from floor to apex has a circumference of 32ft. On the other hand, a lean-to type measuring 12ft. x 4ft. at back and 8ft. at front has a circumference of 37ft.

It would be interesting to know if the apex type of house could be made satisfactorily to hold, say, 50-100 birds on the semi-intensive system. If trap-nesting was practised where would the nest boxes be fixed for such a large number of birds? Readers' opinions on this kind of structure would be helpful. Most poultry-keepers have their own ideas as to the perfect house, and suggestions from readers of "Eggs" would be interesting. It is only through the combined help of all that the acme of perfection is reached.

Yours faithfully,
"ENQUIRER."

To the Editor of "Eggs."

Dear Sir,—All your readers must be most interested in the idea of ventilation expounded upon by Mr. Winthrope Somerville, and I have been hoping to see some correspondence in the matter.

There may be something in the conical-shaped house in inducing the foul air to leave the roosting place, but it does seem that any inlet of cold air from the floor must create a draught to the birds in spite of the dropping board.

In large buildings, such as Exchanges, where a large body of men are congregated, the inlet of cold air is about 7ft. to 8ft. above the floor, and there is no draught if the roof lights are opened before the atmosphere has become too much impregnated with carbon dioxide. With this system the building has the impression of containing sufficient oxygen for the comfort of those in it, though it has been found that oxygen may be reduced to 12 per cent. without harm to humans, and carbon dioxide may be increased to a like proportion.

The breathing of oxygen produces **slow** combustion in all animals, and is what we want, but with poultry it is necessary to get rid of the obnoxious fumes thrown off from their bodies and the dropping boards, which seems to me **must** rise in almost any manner of constructed house. If it cannot get out, it lies as a blanket over the fowls to their detriment.

Surely if there be ventilation holes or netting, or perforated zinc, above their heads, to the height of 2ft. to 3ft., on both sides of the house it must clear those gases away on on side of the house or the other, according to the atmosphere pressure pervading at the time?

I may be wrong, but I put my idea forward, even though it may display my ignorance, in the hope that others will air their views.

I have just constructed a lean-to breeding house—almost square, and wire netting halfway down front, fitted with a canvas shutter on hinges, inside the house, which is open one foot at the top, and when not in use hooks on the roof inside, out of the way. It is certainly more economical than canvas or wooden shutters **outside**. The idea was given me by our County Poultry Instructor, but against his teaching I have drilled holes at the back, close under the roof, and about 2½ft. above the birds' heads, as I have in most of my houses.

I find the old army hut windows, which open inwards, a very good way of keeping the top part of the house clear in all weathers and without draught, but still the holes drilled at the back in all my hover houses (small unit system). I have holes, in addition to the wire netting and shutter, and it suited the chicks and the hovers.

Perhaps Mr. Somerville will be good enough to give us the height of the sides of his pyramid, and say whether a six inch louvre would answer the purpose, or the ridge. Surely enough fresh air will find its way in to force the hot air out through the louvres without having to use a pressure higher than that of the atmosphere?

How far off the ground should the floor be, and should it be supported by vertical props of 2ft. upwards to provide the dust bath, etc.?

If we can make a desirable house in three sections instead of five it will be a great economy. I have certainly made hen coops in this way for economy, but they are necessarily rather dark and dreary owing to the narrow front.

Apologising for my length.

Yours truly, DOWDING POWELL.

THE LANCASHIRE UTILITY POULTRY SOCIETY.

INTERNATIONAL EGG-LAYING TEST, 1923-24.

Held on the Society's Test Ground.

Report of the Twelfth Month—Aug. 19th to Sept. 16th, 1924.

FINAL REPORT.

The final report for the above competition, which ended on September 16th, is an interesting one.

The White Leghorns have gained a slightly better average than the White Wyandottes, which is the reverse of last year.

In the large Breeders' Section, Mr. R. Rodwell, Nelson, gains premier place with Wyandottes in the heavy breeds, and Mr. Frank Snowden, Cowling, a similar position in the light breeds with White Leghorns.

In the small Breeders' Section, J. & W. Purdie, Lanark, wins 1st place in the heavy breeds with Wyandottes, and Miss Paul, Coupar Angus, a similar position in the light breeds with White Leghorns, displacing Major Budd, Abergavenny, who had held the first position practically from the beginning; she wins by a very small margin.

Mr. R. Mills, Penwortham, wins in the Novice Section with Wyandottes heavy breeds, and Mr. Scott McCoomb, Bracknell, with White Leghorns in the light breeds.

Mr. Cook, Tarleton, gains first place in single heavy birds, and Mr. A. V. Wallis, second place in light.

Below is a list of the leading pens and individual birds for the month in the number of eggs laid:—

Large Breeders' Section (10 birds).—Allen Bros., Harrogate (W.L.), 171 eggs; J. Collinson, Garstang (B.L.), 164 eggs; Broad Oak Poultry Farm, Penwortham (W.W.), 163 eggs.

Individual Birds.—W. Rogers, Market Drayton (W.W.), 25 eggs; H. Gabbott, Little Hoole (W.W.), 24 eggs.

Small Breeders' Section (5 birds).—De las Casas Denys, Wincanton (W.W.), 102 eggs; H. Sheard, Halifax (W.L.), 96 eggs; J. Boyle, Freckleton (R.I.R.), 95 eggs.

Individual Birds.—R. Jamieson, Broughton (W.W.), 26 eggs; W. Ellwood, Galgate (W.W.), 25 eggs; B. Ashton, Thornton-le-Fylde (R.I.R.), 25 eggs; C. F. Budd, Abergavenny (W.L.), 25 eggs.

Novice Section (4 birds)—Mrs. J. Sutton, Hoole (W.L.), 79 eggs; J. and D. Johnstone, Fife (Anconas), 77 eggs; R. Marshall, Forton (W.W.), 76 eggs.

Individual Birds.—Mrs. J. Sutton, Hoole (W.L.), 26 eggs; A. W. Page, Broughton (Br.L.), 25 eggs; R. Marshall, Forton (W.W.), 25 eggs.

Single Bird Section.—T. Rossall, Whittingham (W.L.), 25 eggs; W. Foster, Rhodes (W.W.), 22 eggs; Birmingham Industrial Co-operative Society (W.L.), 22 eggs; J. Moore, Brindle (W.L.), 22 eggs; R. Bennett, Hoole (W.L.) 22 eggs.

It has been decided by the Committee that the visiting days will be the first Saturday in each month, instead of the second **Saturday**.

CHAS. E. NUTTALL, Manager

MALPAS UTILITY POULTRY CLUB.

TWELVE MONTHS' LAYING TRIALS. TWELFTH REPORT

Egg production was very satisfactory right up to the finish On the last day of the trials we collected 56 eggs. Ninety-eight birds were laying at the finish. About fifteen had moulted. We consider this highly satisfactory out of a total of 170 birds competing.

As will be seen from the final scores published, several of the pullets put up excellent records, and with a little more careful selection we can increase the average production considerably, as quite a lot of the birds were a long way off laying at the commencement of the test.

White Leghorns.—Mr. Warwick Rogers, 205 eggs; Mrs. Campbell-Muir, 215 eggs; Mr. A. Snowden, 211 eggs.

A.O.V. Light.—Capt. and Mrs. Jarmay, 211 eggs; Mrs. T. Mercer 197 eggs; Mr. J. R. Milnes, 195 eggs.

White Wyandottes.—Mr. T. H. Kemp, 235 eggs; Mr. W. H Robinson, 228 eggs; Mr. G. Done, 227 eggs.

A.O.V. Heavy.—Mr. H. H. Lloyd, 259 eggs; Mr. E. N. Paterson 246 eggs; Mr. E. Bowles, 221 eggs.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, NOVEMBER 7th, 1924.

GRAIN AND FEEDING STUFFS.—Plentiful supplies of English wheat are available, although much of that offered is not up to milling standard. Demand for seed samples has fallen off, and this, in conjunction with the easier tone in the market for imported wheat, has brought about a further fall in prices, the average being 12s. 8d. per cwt., as compared with 12s. 11d. last week. Barley is also in less active request, and prices are lower for malting and grinding descriptions, which average 16s. and 12s. 4d. respectively per cwt., or 7d. less than last week. English black oats are fully as dear as last week, but white oats are easier, demand generally having declined. Imported grain of all descriptions is cheaper, and demand is of a very quiet character.

Millings offals remain in fair request, but demand is not so active as recently and quotations are generally lower, bran averaging £8 18s. and middlings £10 17s. per ton, 3s. to 4s. per ton less than a week ago. Maize meal is distinctly cheaper, and other meals barely hold recent prices. There is little alteration in prices for oil cakes, apart from a reduction of 5s. per ton for English-made cotton cake in London. Dried ale grains are dearer.

MILLERS' OFFALS.—Bran (British): Bristol, £9; Hull, £8 17s; Liverpool, £9; London, £8 15s. Broad Bran: Hull, £10 7s; London, £10. Middlings:—Fine (Imported): London, £11 12s; Coarse (British): Bristol, £10 17s; Hull, £11 5s; Liverpool, £11; London, £10 5s. Pollards (Imported): Bristol, £9 5s; Hull, £8 15s; Liverpool, £9 7s; London, £9 7s. Rice Bran: Bristol, £9 7s; Liverpool, £9 5s. MEAL.—Barley Meal: Bristol, £13; Hull, £14; London, £13 10s. Maize Meal: Bristol, £12 5s; Hull, £12 2s; Liverpool, £12; London, £12. Maize Germ Meal: Bristol, £12 10s; Hull, £12; London, £12. Maize Gluten Feed: Bristol, £12 5s; London, £11 15s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 18s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £20.

EGGS AND DEAD POULTRY.

Best grades of eggs are readily disposed of at advancing prices, while secondary descriptions also sell well, and are meeting the deficiency of the better grades. Little variation is reported in the trade for dead poultry, 1st quality fowls averaging 1s. 4d. per lb.

Week-end Prices—Eggs (per 120): British: 32s 6d, 30s 0d; Irish: 28s 0d, 27s 0d; Danish: 29s 6d, 26s 0d; Dutch: 31s 6d, 28s 0d; Russian: 16s 6d, 15s 0d; Belgian: 27s 6d, 25s 0d; Italian: 23s 0d, 21s 0d; Lithuanian: 18s 0d, 15s 0d; Moroccan: 14s 6d, 13s 9d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d, 1s 5d: Irish: 1s 2d, 11d; Others: 1s 4d, 1s 1d. Ducks: 1s 1d, 11d. Geese: 1s 2d, 10d. Turkeys: 1s 10d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 3s 4½d; Second, 3s 3d. Birmingham: First, 3s 0d; Second, 2s 7½d. Bridgwater: First, 3s 6d; Second, 3s 5d. Carlisle: First, 3s 8d. Chelmsford: First, 3s 7½d; Second, 3s 5½d. Denbigh: First, 3s 3d; Second, 3s 2d. Derby: First, 3s 4d. Dorchester: First, 3s 5d. Exeter: First, 3s 6d. Hereford: First, 3s 0d. Ipswich: First, 3s 6d; Second, 3s 0d. King's Lynn: First, 3s 3d; Second, 3s 0d. Lincoln: First, 3s 0d. Llandilo: First, 3s 0d. Newport (Mon.): First, 3s 6d; Second, 3s 3d. Norwich: First, 3s 6d; Second, 3s 0d. Oswestry: First, 3s 6d. Penzance: First, 3s 0d; Second, 2s 11d. St. Ives (Hunts): First, 3s 8½d; Second, 3s 7½d. Shrewsbury: First, 3s 6d; Second, 3s 3d. Skipton: First, 3s 1d. Truro: First, 3s 0d. York: First, 3s 6d; Second, 3s 3d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 6d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 0d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 3d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 4d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

*Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, November 12th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue.. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

CRYSTAL PALACE SHOW SPECIAL NUMBER.

A Special Crystal Palace Show issue of "Eggs" will be published on the 18th inst. This will be on sale at the S.P.B.A. Stand on all three days of the Show, and, in consequence, our sales will be largely increased. With the busy season so near advertisers are strongly advised to book a space. **WE CLOSE FOR PRESS ON FRIDAY NEXT, THE 14th inst., FIRST POST.**

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS,	per line, extra 9d.
DAY-OLD CHICKS	,, ,, 1s.
DAY-OLD CHICKS	,, ,, 1/6

The number of letters, punctuations and spaces between words should be totalled, when the following table will be of assistance:—

9d. size allows for Thirty-one to one line.
1/- size allows for Twenty-seven to one line.
1/6 size allows for Twenty-one to one line.

When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3	insertions for the price of	2
6	,, ,, ,,	4
9	,, ,, ,,	6
13	,, ,, ,,	8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office

FIRST POST FRIDAYS

for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS.

FOR SALE.

Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faverolles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

Now booking orders for delivery after January 1st, S.P.B.A. Laying Test, Winning Strain (Maddison's direct). R.I.R. Eggs, 7s. 6d. doz.; £3, 100; unfertiles replaced. Chicks, 20s. doz.; £7 10s., 100; superb type, colour, laying qualities. — Simmins, M.S.P.B.A., "Heathfield," Sussex.

Don't force but feed

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EGGS
THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association
WEDNESDAY, NOVEMBER 19th, 1924.

Modern Poultry Feeding.

By TOM NEWMAN.

LOCUST MEAL.

I have had very many enquiries as to Locust Meal and its value, as compared with other animal protein. In answer to this I can only say that, as far as can be discovered, no reliable tests have been made. That is to say, no comparative tests, although some of our S. African members have written to say that they have obtained very satisfactory results with it. The analysis is excellent —that is all one can say at present ; we can only await a comparative test with fish or meat meal. On our stand at the Dairy Show we had a sample of Whale Meal. This is another food which wants testing ; the oil content is very high, whether it is so high that it would detrimentally affect the birds we can only tell by a test over a fairly long period. There are many new foods which need testing, and it is of particular interest in these days of rising prices.

Some of my readers are very anxious to find cheap food substitutes, and two enquiries are to hand this week, one as to beech nuts, and the other as to chestnuts. In regard to the former they contain a poison which is injurious to horses ; whether it would affect fowls I cannot say. They have a very high fat content, and also a high fibre content, so that with the trouble of collecting them and preparing them, their value seems to be negligible. Horse chestnuts have occasionally been used, but they have a very stringent taste and are not very palatable. During the war questions as to these two nuts were frequently asked, and a few people tried them ; they really have no value as poultry foods.

"FORCING" AND THE LAYING TESTS.

That old question as to what constitutes a "forcing" ration constantly arises, and now we are told that methods that in many instances would be of little practical value to the commercial man, but are compounded with the object of forcing the birds to put up record scores, are in use in the laying tests. It is just possible that such is the case in one or two of the minor ones, but, frankly, I do not believe it, and such assertions should be substantiated; they are so very easily made. For a short period the birds may respond to a very stimulating ration, but the managers of our laying tests have to deal with selected highly-fecund stock, and a forcing ration used with such birds would prove disastrous in a very short time. It would not be long before the experts who are in charge of the tests would perceive indications which would compel them to modify their feeding. There would soon be thin-shelled and shell-less eggs, and serious ovarian trouble, which could only end in a high mortality, which would bring the test into disrepute. One quickly realises that one cannot force highly-fecund stock with impunity, and anyone who has had experience in this direction would hesitate before making such a charge. Let us look at the matter in this way. We have two pullets, one a potential layer of 240 eggs, and one of 120. For a short period on a "forcing" ration you may so stimulate the former that she will produce four eggs a week instead of three, but it will be for a very short period, and if attempted in the flush months would result in the collapse of the bird. In the case of the other bird, which would certainly prove a poor winter layer, you would not get an additional egg out of her during the winter months. She might lay her eggs more rapidly during the spring months, but she would finish earlier, and so nothing would be gained. The number of eggs which a pullet will lay in her pullet year is determined by heredity. Whatever we may attempt in the way of feeding we cannot induce her to lay more than that number, any more than we can induce an animal to attain more than the upper limit of the size which is determined by its heredity. Feeding is undoubtedly a controlling influence, but it can only assist the pullet to attain her maximum production, and if that is 120 eggs in a year, you cannot feed her to make her produce 121. We have proof of this in the fact that although we can produce a greater number of eggs during the winter months by the aid of artificial light, there is a corresponding reduction in the spring and summer months.

Just a word of reminder to the novice. The laying stock at this season of the year spends some sixteen hours on the perch, further the nights are chilly, and for this reason it is well that they should go to roost with full crops. I find so many of my correspondents start the day with an ounce of grain per head in the litter, then open the dry mash hoppers, and give another ounce of grain as the last feed. Now this is not conducive to egg production. If your pullets have their appetites partially satisfied, they will not consume so much mash as they should do, consequently the total consumption of food is below their requirements for both maintenance and production. They may look in splendid condition, and like laying, as so many of you tell me in your letters, but they don't lay. The better plan is to give just a small scratch feed directly they come off the perch, say a handful of kibbled maize between five birds; this will give them the necessary scratching exercise which will stimulate them, and they will consume more mash, and then, if the full grain feed is given as the last feed, they will be better prepared for the long night.

I heard a lecturer say recently that we did not want warm houses for our pullets, all they required was shelter. With this statement I entirely disagree. There is a great expenditure of bodily heat in a cold house in cold weather when the birds are on the perch at night, and that they do require reasonably warm houses is evidenced by the fact that in cold weather they will huddle together on the perch for warmth. A cold house is against winter egg production, and it is one of the most fruitful causes of colds and roup. One of the primary causes of roup is the foul atmosphere created by crowding on the perches; and 90 per cent. of the infection takes place at night. But this is apart from the feeding. I only want to point out that pullets cannot produce the maximum number of eggs when they are exposed to a temperature which may for many hours be below freezing point, and there is not the slightest reason why we should not have a warm house and at the same time a well-ventilated one.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

Officially supervised by the Leicestershire County Council Agricultural Education (Joint) Committee. Horticultural Sub-Committee.

First Monthly Report for the period Oct. 6th—Nov. 2nd, 1924.

The second of the above twelve months tests commenced on October 6th on the farm of Mr. W. Rolling, "Cragmere," Broughton, Astley, and the first monthly period shows very satisfactory results. Most of the pullets arrived in a forward condition and soon settled down to laying, producing 293 eggs in the first week and 392 in the fourth week. The total of eggs produced by the 112 birds competing was 1,430, an average of 12.7 eggs per bird in the 28 days. Fifteen birds have not yet commenced to lay. The health of the birds has been satisfactory, and no case of disease has occurred. The best performance has been made by a pen of Rhode Island Reds owned by Mrs. E. Ball, Claybrooke, which has laid 133 eggs, 132 of which have been first grade, of the value £1 13s. 1½d. This is an average of 22 eggs per bird. In the light breeds, a pen of White Leghorns, owned by Mrs R. Crawford, Lowesby, put up the best record, laying 94 eggs, of the value of £1 2s. 8¾d. Mrs. Ball's R.I.R. Pullet, No. 94, made the best individual record, 26 eggs in 28 days.

The positions of the competing pens are as follows:—

Section 1, Division A—Light Breeds (6 birds).—Mrs. R. Crawfor (W.L.), 94 eggs; Crawford & Dowell (W.L.), 75 eggs; Alan Kemp (B.L.), 77 eggs.

Section 1, Division B—Heavy Breeds (6 birds).—Mrs. E. Ball (R.I.R.), 133 eggs; Crawford & Dowell (R.I.R.), 123 eggs; C. B. Payne (R.I.R.), 111 eggs.

Section 2—Any Breed (2 birds).—J. T. Kidger (W.W.), 46 eggs; Geo. Gilliver (W.W.), 34 eggs; Mrs. Gilliver (R.I.R.), 17 eggs.

On Breeding

By G. C. HESELTINE.

LINE-BREEDING II. (Continued).

From what was said in last week's article on the above subject—namely, that the fundamentals for success in line-breeding are the exceptional quality of the stock, the ability of the breeder to select such stock, and his ability to resist the strong temptation to breed from good stock lacking in one or two not very obvious essentials, it will be seen what Mr. Tom Newman meant when he said (in the Dairy Show Supplement to "Eggs") that the first factor for success in line-breeding is the **human factor.**

This is but stating in another way the obvious truth that the artist is greater than, and therefore more important than, the materials with which he works. Breeders are artists working in living materials. Artists are born and not made (unless they can be said to make themselves), and no amount of book-learning, instruction, or the following of a line-breeding chart will ensure success in line-breeding, any more than such a course would ensure success in any other art. Without personal love of the stock and the work, skill in selecting, accuracy in recording, and courage in culling, line-breeding must fail.

Of skill in selecting we have already spoken. Accuracy in recording is next in importance. It is necessary in the first place in order to ensure that the relationships of all the birds mated are known. Any confusion of relationships may entail serious loss of time, resulting perhaps in no advance for a whole season's work, and it may also cause a certain amount of retrogression. For instance, a certain undesirable factor may be difficult to eradicate, but may be successfully kept in a recessive condition until time can be devoted to its eradication. That is to say, a breed with which you are working may be, for example, rose-combed but owing to some mating made for, say, improvement of colour, a single comb has been introduced. In the subsequent breeding some birds would be pure rose-combed and some would look like pure rose-combs but in reality be **impure** rose-combs, carrying the factor for single comb in a recessive condition.

If we write down the pure rose-combs as "RR" and the impure (with the masked or recessive single combs) "Rs," the capital letter in each case standing for the factor "Rose" (which is dominant) and the small letter for the factor "single" (which is masked and not evident), it will be seen that our apparently rose-combed birds will be of two kinds, RR and Rs. Any matings of RR with RR can give only rose-combs (on the principle stated early in these articles that you get out of a mating what you put in). Any matings of RR with Rs will also give only rose-combs, for the only possible combinations are RR and Rs. But if two Rs birds should by any chance be mated together, Rs x Rs, you would get RR, sR, Rs, and ss, the last being **pure singles.**

If, however, the relationships of your birds are carefully recorded, as well as their ancestry, it may be possible to avoid bringing Rs birds together until such time as you are ready to deal with the elimination of "s" altogether.

If you know the progeny of one mating can give only pure Rose, but the progeny of another mating is liable to carry a recessive single, you know that by mating the progeny of the first mating (which will be RR) with the rose-combed progeny of the second mating (which may be Rs), you can get only rose-combed birds (though some may be impure). On the other hand, if by an error in recording you are not sure of the relationships of the birds you mate and you unintentionally mate together brothers and sisters or mother and son, etc., of the second mating, you may at once get a crop of single combs.

In practice the case is not always by any means so simple as the above example, but the example is only intended to serve to illustrate the danger.

The keeping of accurate records is essential for an even more important reason. It is possible that of two full brothers, A and B, from a given mating, A may look a better bird than B, though both are good ones. It may, and sometimes does, happen that A, when mated, will not give such good progeny as B will give. When one of them is to be used for a further mating, selection on appearances will be in favour of A—as far as ancestry goes they are equal. Therefore, unless you have kept accurate records of the progeny you will select A for your future mating—the **wrong** selection. For in breeding what a bird **breeds** is far more important than what he **looks.**

In this connection it is as well to point out that it is not sufficient to judge a bird's breeding quality on its **matured** progeny. Records of the growing stock, and even of the colour of dead-in-shell (if you should happen to be breeding for colour) may give you important information.

An unforeseen loss in incubation or brooding may kill off a few faulty birds from one mating, and when the remainder are matured they may show 100 per cent. good birds. Such a mating, if no records were kept of the chicks lost in incubation or brooding, would appear to be much better than it really was. It might thus be very misleading when future matings are considered.

(Although colour is often referred to in the course of examples in these articles, it is for simplicity only—the principles of breeding are the same whatever characters, visible such as colour or invisible such as egg-yield, are concerned.)

It may seem to some readers that such meticulous recording as that of dead-in-shell is carrying things a bit too far. It is true that it entails much labour, and is not always practicable. It is, if you like, "counsel of perfection," but it makes for greater accuracy by eliminating possible sources of error. Since in all these things we have a certain amount of **unavoidable error,** we must reduce the **avoidable** error as much as possible.

(Continued at Foot of Next Column.)

(To be Continued.)

The Internal Mechanism

of the Egg-Laying Machine.

By **J. L. ROSEDALE.**

I. "THE DEVELOPMENT OF THE MACHINE."

The most important step in developing the "Egg-laying Machine" is to hatch an egg, and it is with one or two essential points in this regard that it is proposed to deal in this article.

Somebody once vouchsafed the information that "Eggs is eggs," but so sweeping a generalisation might, indeed, be called to account—there are eggs and eggs!

The branch of science dealing with pre-natal development is called "Embryology," and its study entails a pretty sound knowledge of biological laws and special technique in preparing specimens in order to work out the details.

The average poultry-keeper has generally little time to acquire these, so that it is unnecessary to go further than to point out that during the very first day of incubation, beginnings of what will ultimately turn into actual organs and parts of the living bird can already be observed if proper microscopic preparations are made. This is a fact of the highest importance to the practical man, as it means he is dealing with a living thing right from the start.

We have then a living organism which must be expected to carry out the usual functions of living organisms, and must be treated carefully as such.

The great difference between birds' eggs and the ova of mammals is that the former possess a yolk, which, perhaps, may be considered an encumberance which has gradually to be got out of the way. Speaking broadly, the easiest way to get rid of the encumberance is to eat it, and that takes time. Thus the hatched chick is in a more advanced stage of development than the newly-born mammal, and can be brought up on such things as one of Mr. Newman's mashes, which would hardly be quite suitable for a new-born babe!

At the outset the first essential pre-supposes fertilisation. Unless the egg is fertilised nothing happens. The hen can, of course, perform the ceremony of putting the white and yolk into the case we call the shell, and laying it, but that does not concern us here.

The egg is fertilised some distance up the oviduct, and the male element must naturally enter the egg before the shell is put on. Probably fertilisation takes place some 22 hours before the egg is laid. We see then that fertility is a question very distinct from what we usually call hatchability. Fertility depends only upon the parents. Hatchability may or may not depend upon the parents—it depends upon the egg itself and upon incubation.

The nearest approach to an egg with which we are familiar in agricultural life is a seed which we may compare in one or two respects, and notice that the fundamental biological laws apply in a general way to all forms of life, though there are modifications of detail, as we have already observed as between hens' eggs and the ova of mammals.

A seed of wheat is composed of a seed coat, an embryo or germ, and a lot of starchy matter, which serves as food for the growing plantlet.

An egg consists of a coat or coats in its shell and membranes, a germ and a white and yolk, which serves as food for the developing chick.

The most noticeable difference so far is in the seed coat and egg shell, and it will be pointed out below why it is so important that their respective coats are different. We must, first of all, however, consider what are the essential conditions to make each "sprout."

The most obvious condition is temperature. This may not be quite so obvious in the case of the seed which can germinate at what we call ordinary temperature, but we know that the egg requires a higher temperature. On the other hand, neither will germinate if the conditions are too cold or too hot. We know also, that there is a certain amount of give-and-take within the limits we may say of the body temperature of a healthy bird, about 103 F., more or less. That is one point—right temperature.

The point of second importance is probably ventilation. By this we mean a proper circulation of air at the temperature concerned. Why is circulation of air necessary?

Living things breathe. This process may be briefly described as the taking in of a gas called air and the putting out of a poisonous gas called Carbon Dioxide. Carbon Dioxide is a heavy gas; it is heavier than air, and has to be removed and fresh air put in its place for the living organism.

Experiments on the respiration of developing eggs show that breathing starts very early on, and gradually increases as development proceeds. In incubation, therefore, we must provide fresh air for the embryo, and make arrangements to get rid of the carbon dioxide. Carbon dioxide must not be allowed to sit on the bottom of the egg tray as it will accumulate and suffocate the growing germs.

A third requirement in the development and maintenance of life is moisture. A seed must have a moist seed bed, or it will not develop. Here, however, there is a difference in the case of an egg, and the reason can be seen from the chemical analysis. Eggs contain about 75 per cent. or three-quarters of their weight as water, while wheat has only 13 per cent., or just enough to carry on with till the little rootlets can get a further supply. As the 75 per cent. of moisture is about the correct amount for the composition of the hatched chick, surely what we want to do is not so much to supply more moisture as to make sure to retain what is there.

We have already mentioned two conditions which are rather antagonistic to retaining moisture, as when there is a warm temperature, evaporation goes on, and moisture has to get into the air in the incubator from somewhere, and if it cannot come from anywhere else it will have to come from the eggs. Furthermore, we have continually to change the air so as to ensure ventilation, so that more dry air enters which goes on taking moisture. Prevention is usually attempted either by putting plenty of moisture into the incubator with the hope that it will get evaporated rather than the moisture in the egg—not a very scientific notion—or else by introducing moist air only, or by decreasing the ventilation, so that it shall not be excessive.

Our three essential points, then, are somewhat antagonistic to one another—a sort of "three-cornered contest"—and really the only definite information we have is that the "Hot Party" must be kept in its proper place, about 103 degrees. The three factors are, of course: (1) Temperature, (2) Ventilation, and (3) Prevention of excessive evaporation.

The "Coats" of the egg may now be briefly considered. The shell is a protective covering which keeps the whole thing rigid, and yet is porous. There is both an advantage and a disadvantage in its porosity, but the advantage is a necessity, and, therefore, we have to put up with the disadvantage!

The shell is porous so as to allow of the breathing. It allows the entrance of air and the exit of carbon dioxide. The disadvantage is that water can pass out by evaporation. The disadvantage is not, however, as great as it may seem. The difficulty of hatching a shell-less egg is that it dries up and collapses. The shell prevents some of this evaporation, or, at any rate, retards it considerably.

But you can get all these mechanical factors right, and still fail to hatch a fertile egg if the egg is not right itself.

The egg has a proper chemical constitution, and if every ingredient is not there in PROPER PROPORTION the egg will not hatch.

The food for the developing chick has to be put into the egg before it is sealed up in the shell. We know how careful we have to be about feeding the chick properly after it is hatched, why then should we be less careful with its food before it is hatched? The hen puts the food into the shell, but unless the hen has the right material to supply the egg with, it cannot produce an egg which is physiologically sound.

It may be noted that the rate of growth is about one hundred times more rapid in the three weeks of incubation than it ever is again, even if it lives to a good old age, and dies a fat hen!

We may, then, summarise briefly by saying that in order to develop an "Egg-Laying Machine," have a fertile egg, which contains a proper balanced diet for the embryo to grow upon.

Withysham,
Merstham, Surrey.
10th November, 1924.

"Dear Mr. Newman,—My Wyandotte record for the past three years—flock of 30 to 40—averaged 219, 189, 202, and this I have done by reading your valuable paper and advice.

Yours faithfully,

(Signed) E. PASSMORE.

Marketing of Table Poultry.

By A. V. CLARKSON.

TURKEYS.

Knowing that there are many members of the S.P.B.A. who are rearing turkeys for Xmas, and anticipating that many of them have neither a definite market for their produce nor the technical knowledge of preparation, I have compiled the following article for their benefit.

It is possible that many members have only a few turkeys, and do not consider it worth while sending them to London, and will probably dispose of them to the local higgler or dealer, who in turn will forward them to London.

This article is complete with details, photographs and sketches, and where the producer has not a ready market for his birds will enable him to prepare them for the London market, and so cut out one middleman's profits, even if he only has six turkeys, but at the same time it will be just as useful to the man who has a hundred or more, and I think that with the photographs and sketches the instructions are practically fool-proof.

STARVING BEFORE KILLING.

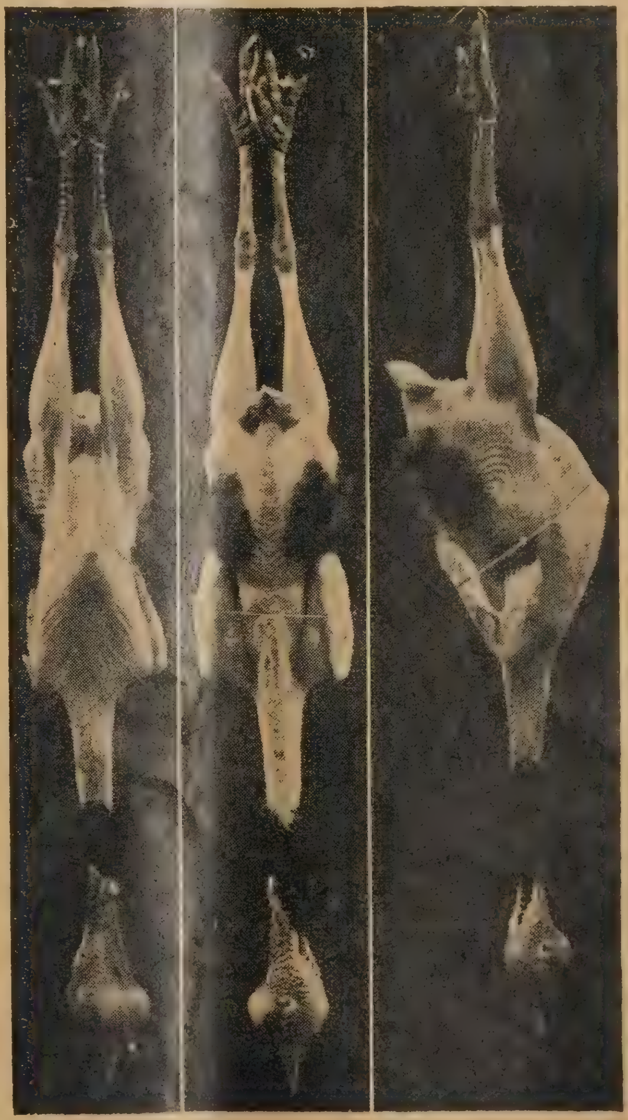
The birds should be starved for a full twenty-four hours prior to killing. If the weather is cold the birds should be given a drink about two hours before they are killed. If the weather is muggy do not give the birds the drink. The object of this drink is that it makes the plucking considerably easier, but it must be taken into consideration that if the weather is warm a bird with water in it is apt to turn green.

KILLING.

For the killing of turkeys a good-sized shed is necessary, with a rail down the centre on which to hang the birds. The birds should have their legs tied together, and should be hung on this centre rail head downwards. They should be hung at such a height as will enable the person killing to stand on the floor and yet be able to get a good pull at the neck. Then the bird should have its neck dislocated in the same manner as a chicken. After this the birds should be allowed to hang for a few minutes whilst the nerves cause the birds to flap about, and the object in hanging them in the middle of the shed is to prevent them from bruising themselves whilst they are so flapping. Then the person who is killing the bird should take the head in one hand, and with the other grasp the neck about four inches from the head, and press the head back towards the neck where dislocated several times, and each time give the head a slight turn. This process causes the blood to flow down the neck into the space between the dislocation and the head, and so prevent the blood from flowing back up the neck, and will give the bird a better appearance when dead, because a bird not so treated will have the whole of the neck turn black if it is hung for three or four days after it is killed; and here again one will remember that appearance goes a long way towards selling.

PLUCKING.

When the above two processes have been gone through, first of all the flight and tail feathers should be removed. Next the bird should be rough-plucked, and after this the finishing touches should be given. The only feathers to be left on a turkey for the London market are three or four feathers at the tip of each wing, a tuft of feathers on each hip, and the feathers from the head towards the body, just far enough to cover the congealed blood as stated above. The few fluffy feathers left on the hips are for the purpose of preventing the birds being bruised, or the skin



Front View. Back View. Side View.

barked during transit. The attached photographs will give a clear view of exactly how the birds should look when finished, and how it should be packed in the case for transit.

After this process has been gone through the most serious consideration is that the birds are taken and hung until the animal heat has absolutely left the bird, and then they are ready for packing.

Where there are a quantity of turkeys to do it is usual to have about four people for the job to take the following duties :—The first dislocates the necks six at a time. He then treats the heads to draw the blood downwards. The second one pulls out the big flight and tail feathers. The third one does the rough-plucking, and the fourth puts the finishing touches to the bird.

GRADING AND PACKING.

When a sender has only a few turkeys, say up to a dozen, he can pack them in one hamper or crate.

When a sender has a large quantity of turkeys from a dozen upwards he should employ the following methods of grading :—

Cocks weighing 18 lbs. or over should be packed together.

Cocks weighing 14 to 18 lbs. should be packed together.

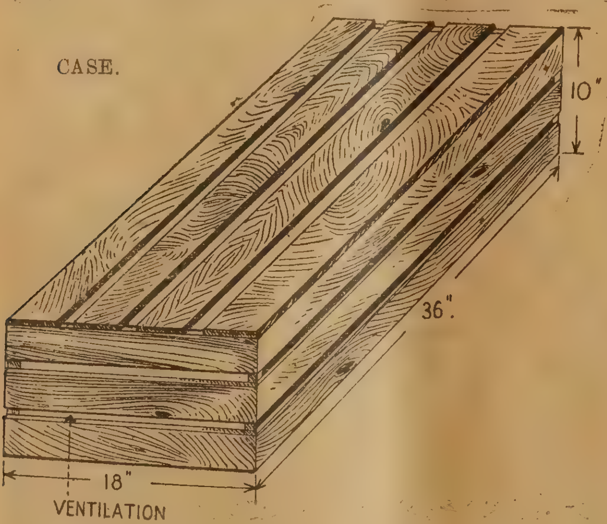
Cocks weighing 12 to 14 lbs. should be packed together.

Cocks weighing under 12 lbs. should be packed together.

Hens should always be packed separate from cocks.

The birds which are being packed for the London market should be packed in crates or hampers, using clean, straight, long straw (not broken chaffy straw) for packing material. In addition to this straw, it is better also to have a sheet of grease-proof over each bird to prevent them getting blood-stained.

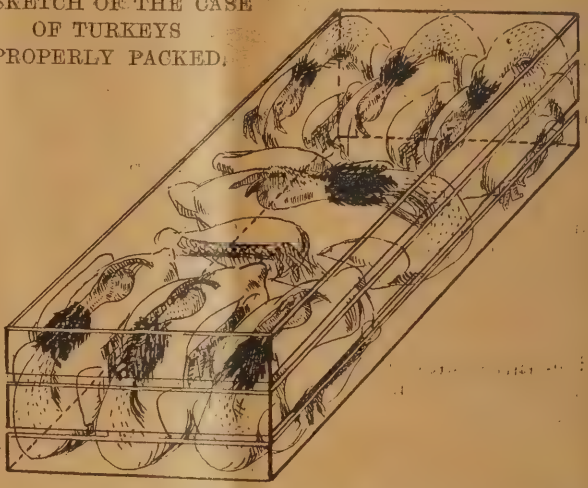
CASE.



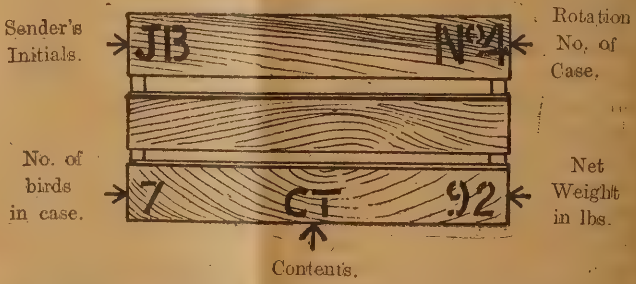
If the turkey sender has hampers, of course he will use them. If he has not, it would pay him to have special crates, measuring approximately 36 in. long, 18 in. wide, and 10 in. deep, made of battens to allow plenty of ventilation with a nail-on or hinged lid according to his own idea. These crates are most serviceable for turkeys, and have the additional advantage that they can afterwards be used for chicken, alive or dead. The turkeys should be packed as follows :—

First of all a layer of straw at the bottom and hanging over the end, then put three birds each way from the end towards the middle with the heads hanging over the end of the crate. Put straw or grease-proof over this and turn the heads back over the breasts of the birds. This will leave a cavity in the middle of the crate, in which can be packed one more turkey, which must be well protected from the others with straw or grease-proof. Over this must go a complete layer of the straight straw, then nail the lid down and trim off the edges of the straw. Now mark the end of your case as follows with the contents, and be sure you have put a note of the contents and the name of the sender inside the case, or send it by post.

SKETCH OF THE CASE OF TURKEYS PROPERLY PACKED.



END VIEW OF MARKING CASE.



Senders will find that if they will follow this advice they will make a convenient and orthodox package, which will weigh under 1 cwt., and is very easy to handle, and is the method adopted by the big senders in France, some of whom send as many as 10,000 turkeys in a fortnight. The writer will be pleased to give any further information that may be necessary upon application to the editor.

(Continued at Foot of Column on Next Page).

Sour Crop.

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

One is always getting letters about cases of what the owners describe as "sour crop," but no disease of that name appears in the indices of any book on avian pathology. This is not sufficient ground for contemptuously casting aside the view generally taken by practical poultrymen of long experience who recognise a condition to which they give that name; if merely following the dictum of a predecessor. Let us consider the state of the crop described as sour, and note if it is only a strictly local condition, or a part of a greater digestive disturbance.

The poultry farmer does not mean what is known as crop-bound, or paralysis, but something rather in the opposite direction, such as excessive fluid in it, and that having a sour smell and being retained, digestion being meantime suspended and the bird showing signs of ill-health, not caring for food, looking dull and listless, and very likely humping in a corner, and not keeping company with the flock, or interested in their doings. If the fowl so affected is handled, it will probably be found that the contents of the crop are easily pressed to one side or upward or downward, and tend to remain temporarily compressed or aside, as the fingers may have directed them. In the healthy crop the normal shape is resumed in about the same time as a hollow rubber ball, with but a small hole in it, will do. There is a resiliency which bears comparison with the ball. The crop sick or bird with so-called sour crop will sometimes perform what can scarcely be described by anything less than the term vomition, and is much relieved if held up by the heels and the vomiting favoured by moderate pressure. The trouble is also much reduced by copious draughts of warm water, by which I do not mean voluntary draughts, but by being drenched, as one would a bullock. These points have probably been observed by others, but I do not find them in any book to which I have access. The healthy bird has always a distinct and never really pleasant odour in the crop, whether containing food or quite empty. It is greater when the crop is full than when empty. If a healthy bird is killed with food in the crop, and that viscus is cut open in the dark it will be luminous. Even in a low medium of light, but good enough for the operator to see, there will be more or less of a cloud rise from the inside, and with a distinctly phosphoric smell. Chemically tested it gives an acid reaction.

Is phosphorous then secreted by any hitherto undiscovered glands, or does maceration of food in the receptacle we call the crop, cause a decomposition of food containing phosphates; a process in other animals which is presumably one of the many complicated operations which collectively we call digestion? It sems strange that such changes should be present in the very first process of digestion, because the crop itself contains no glands, save the sub-mucus ones, which are present throughout the lining membrane, from the fauces to the terminal portion of the intestinal canal. Moreover the absence of teeth and of any crushing, or mouth work, and of insalivation, such as takes place in men and beasts, would seem to deny any fermentation by the added substances, such as ptyalin and salts as are secreted in the mouths of quadrupeds, and with which the food is saturated and digestion begun in the mouth. Is the fermentation that occurs in the crop merely due to the warmth and moisture of that receptacle? My own experiments go to show that there is some other factor, because I have used a chemically-cleansed crop and other mucus membranes with a gut wall of muscular tissue and an outer one of serous or peritoneal membrane, as an artificial stomach, and kept the bag of food in a carefully regulated oven at a temperature of 107 or 108 Fahr., for various periods, but never obtained what, for convenience, may be called the phosphoric decomposition. Only maceration followed, and after that sourness. In some the grain contents sprouted, but there was never a cloud, as from the many birds opened after a journey, or as found in a killed bird in health.

All will agree that fowls swallow their food without any sign of mastication. How then can they taste it? And if they do not taste it why do they rush after a scrap of meat, and tumble over one another in their eagerness for a bon bouche? The tip of the tongue, with which we can both feel acutely and taste as well (although not so keenly as with the circumvallate papillae further back), can afford the fowl no gratification, nor will there be any taste in a grain of maize with its hard exterior!

Although there are no glands in birds comparable with the great parotids under the ears of quadrupeds and men, Heidrich has demonstrated maxillary glands in the roof of the mouth, palatine glands on both sides of the common opening of the nasal chambers, and further forward at the union of the mandibles, submaxillary glands, also posterior submaxillary glands, in the tongue lingual glands, and around the opening

MARKETING OF POULTRY.—Continued.

SENDING.

After the birds are all packed in the case and the cases all marked at the end, the sender should arrange to have them despatched from his station over night at a time when they will be delivered in the London market first thing the following mornin. These details must be ascertained from the local station, and the birds should be sent passenger train and not goods train, because the few shillings saved may cost the sender pounds if his turkeys are delayed on the rail and the weather is warm enough to turn them green.

Of course, the actual time of sending to the London market is at the discretion and convenience of the sender, but nevertheless he must keep in communication with the salesman in order to ascertain the salesman's opinion of what is the best time to put them on the market.

(This Article is Copyright.)

into the larynx, crico-arytenoid glands, and at the angle of the mouth another. Only mucus appears to be secreted by these, and they are neither in structure or function the equivalent of the parotids, which play so important a part in the salivary secretions of men and beasts.

If, then, they do contribute to digestion, the ferments or salts they contain must be possessed of what I may be permitted to call active principles, as powerful as vitamins. And if there be such, then the withholding of their contributions from any cause whatever could easily account for what is popularly called sour crop. We know how the withholding of the biliary secretion leads to sourness and scouring in animals, or the failure of the pancreas to emulsify fats. We know that we are punished ourselves if we refuse or are unable to masticate and insalivate, and thus begin the process of digestion in the mouth, but we do not know at present whether these minute glands in birds aid in digestion or not. For everything there is a purposse, can we but find it out; and it seems legitimate to assume that these various glands have a function greater than the provision of moisture, although the amount of mucus secreted by fowls is very large when in health, and if they are denied water on a comparatively short journey, their mouths soon become sticky with semi-solid mucus, leading the unwary to suspect diphtheritic roup.

Dr. O. Charnock Bradley has done us a great service in producing his "Structure of the Fowl," and one fondly hopes he will put us under further obligation by a similar book on the physiology of birds. Without knowing something of their physiology we but grope in the dark when trying to treat departures from the normal physiological actions, which we call disease.

No doubt the general reader will be weary of this attempt to elucidate the causation of sour crop, and I would throw a sop to him by saying that in practice I have found sour crop fairly easy to deal with, although there are several conditions giving rise to it, and easily demonstrable. The soveran remedy is fasting. First of all some warm normal saline consisting of one dram of chloride of sodium (table salt) in a pint of boiled water should be forced down the throat—a not difficult matter, for the gullet is very large in proportion to the fowl; then allowed to run out by holding up the patient by the legs; then repeating the operation, and placing the subject in a bare apartment where it cannot pick up anything whatever, and withholding food but not water for 30 hours or more. Scalded bread squeezed hard and deprived of as much water as possible may then be soaked with gravy or meat extract, rather than with milk, which would seem to be indicated, and an ounce or so given as a first meal. Ten hours later a rather larger meal may be allowed, and a diet on the ascending scale follow, in which farinaceous puddings are followed by Sussex ground oats, and later a small amount of corn with oyster shell for grit.

Neglected or chronic cases will benefit by the addition of two or three grains of carbonate of soda and five grains of powdered calumba root with each meal.

"THE MANAGEMENT OF THE LAYER."

The third of the series of poultry lectures under the auspices of the Manchester Agricultural Committee was held at the Seymour Road South School, Clayton, on Friday evening, 7th November, 1924, Councillor W. Binns presiding.

The Chairman, in a few well-chosen remarks, introduced Mr. Joe Edmondson, whose subject, "The Management of the Layer," would, from so able an authority on the subject, teach us how to proceed to obtain the winter egg.

The Lecturer said it was well to keep in mind that on the subject of "The Management of the Layer," otherwise egg production, there are six different parts of sections, and each must dovetail to obtain a perfect combination, the parts being: Breeding, Hatching, Rearing, Housing, Feeding, Culling.

Birds must be properly bred to enable egg production at the right time, and breeders will do well to keep in mind the importance of the male bird to the pen. It is wiser to mate up with a sire whose dam had a higher record than the dams of the females making up the pens. In selecting breeders, if the trapnest is not used, then some method equivalent and with a degree of certainty must be adopted. Late moulters, under ordinary conditions, generally speaking, make the best layers. The all-round texture of the bird is a very fine guide to the good layer. Hatching late will not produce winter eggs. The pullets grow badly, therefore care must be taken to hatch at the proper time, not forcing the chickens, but allowing them to be well reared and grow in a natural way, for it is the first six weeks of the chicken's life which is the most important. Overcrowding is one of the greatest evils, and can only be strongly and very strongly condemned. Wheat, oats, maize, animal food, and greenstuffs are the necessary foods for young stock after six weeks, then meals can be given composed of sharps, bran, Indian meal, biscuit dust, ground oats, fish, and a little charcoal.

Houses must be well constructed, roomy, light, admitting the maximum amount of sunshine, for light and sunshine are the two best preventers of disease. Simplicity is the keynote to the management of poultry, and the more simple fowls are kept under sanitary and hygienic conditions, the less disease. Vitamines, the new scientific name for salts and minerals, everyone must now be familiar with. Fowls are naturally concentrated feeders, not bulky, as so often stated. The only bulk food should be green food. For breeders and layers it is necessary to cull, otherwise it is not possible to gain that which all desire, mainly, the winter egg, and in greater quantities.

Many questions were now asked, and very ably replied to, the meeting coming to a close with a very hearty vote of thanks to the lecturer for his very interesting and instructive remarks.

W. G.

BARROW AND DISTRICT UTILITY POULTRY SOCIETY.

EGG-LAYING COMPETITION.

The egg-laying competition organised by the Barrow and District Utility Poultry Society has just completed its first period of four weeks. The test is being held at Mr. G. B. Tootall's Thorncliffe Poultry Farm, who will be pleased to show anyone interested round at any time, provided he has notice beforehand, so that he can be on hand to show them round.

The test has two classes, viz., open class and small breeders (owning not more than 50 pullets). Method of scoring: Eggs, 2oz. or over, first grade, 10 points; under 2oz., and not less than 1½oz., second grade, eight points; all under 1½oz. do not score.

Mr. Tootall reports as follows:—"I am pleased to say that, on the whole, there is a great improvement in the type, colour and general appearance of the birds, as compared with last year's entries. Only about 50 per cent. have commenced laying, but there are indications of more commencing to lay shortly."

The following win the monthly certificates:—

Open Class.—Section 1— W. Wyandotte: E. Atkinson, Urswick, 202 pts. Section 2—W. Leghorn: J. J. Hardy, 16, Leicester Street, 168 pts. Section 3—A.O.V. Heavy: Hon. M. Cross, Ash House, 184 pts, Section 4—A.O.V. Light: M. Newton, Newland, 168 pts.

Small Breeders' Class.—Section 1: G. Waite, Oxford Street, 160 pts. Section 2: J. J. Hardy, 168 pts. Section 3: R. Atkinson, Kirkby, 60 pts. Section 4: No award.

J. GRAHAM, Secretary.

10, Romney Road, Barrow-in-Furness.

50, Moorland Grove, Smithills,
Bolton, Lancs.

"Dear Sir,—I should like to add that I consider your paper, 'Eggs,' easily the best paper on poultry I have ever read, and I have been reading poultry papers for the past 20 years.

"With every good wish for an increasing membership."

Yours truly,
(Signed) WILLIAM BROUGHTON.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**)

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

H. F. F. (Bradford). For the 48 White Wyandottes you would require four cockerels, unless they were on free range, when you might manage with three. (2) It is not uncommon for White Wyandotte cockerels to show black feathers. The White Wyandotte is a "sport" from the Silver-Laced, and this is merely a case of reversion; but when you say there are several black feathers, that is a different matter, and I should not care to mate such a bird. (3) With regard to the other, which has a hoarse rattle in the throat after crowing, I should closely examine this bird's throat. It sounds to me like bronchial trouble after roup. You say their appetite is not good. Is the mash appetising? Try them with a mash of one part scalded biscuit meal, three parts thirds and one bran, with a quarter part meat and bone meal. As your hens are not yet through the moult, it is not surprising that their eggs have become small. They are a little out of bodily condition. The dry mash itself would not account for the small eggs. When they are right through the moult you will see an improvement in size; meantime, give them kibbled maize as the sole grain feed.

J. N. W. (Crawley Down). It is not easy for me to tell you why you are not getting more eggs, but there is a probability that many of the Leghorns which were hatched in March are now dropping into a neck moult, that a number of the 1923 pullets are not yet laying, and we now come to this year's April-hatched pullets. The small eggs which you are getting points to their just coming into production. I can only advise you that you handle some of your birds and endeavour to find out what is their bodily condition. Your feeding appears all right, but I would advise you to replace the maize gluten with maize meal. I am, of course, assuming that the ingredients are all of really good quality. Much of that which is described as broad bran to me is merely ordinary bran of inferior quality, which has been passed through the rollers twice and flattened out. You would do better, instead of giving your one ounce of grain in the morning, and one in the evening, to give two ounces in the evening as the last feed, and just a small scratch feed in the morning when the birds come off the perch to induce them to take exercise. More than this I cannot tell you without seeing the birds. Thanks for your appreciation of "Eggs."

G. R. C. (Plumstead). The quality of the middlings used here leaves something to be desired, and the mash is rather too bulky. It would be a good thing to reduce the bran by one half part. I assume that some of the hens have not yet recovered from the moult, and, as you will have seen in last week's issue of this journal, this has been a very bad season for egg production, which we can only attribute to the cold and sunless summer, and the inclement weather we have recently experienced.

A. K. E. (Witney). The sample of bran is a fairly good one and not dear at the price. The ground oats are good. The meat meal just fair. I do not altogether like it, and it is very dear at the money. You could get something equally as good at 20s. The toppings are very poor quality; not good enough for your purpose. There is a very high percentage of fine bran in them. The fish meal is a good sample, and the maize meal, although a little coarse, above the average. I think your mash would be better if you were to replace the S.G.O. with another pound of maize meal, and increased the fish meal to one pound. In reference to the hens dying. You must remember that the constitution of all hens in a flock is not the same, but there could have been no forcing in this formula. This is more likely to have been a matter of constitution rather than of the actual feeding itself. I never advise such a close mating as you suggest—that is, the dam to her son. If you are perfectly satisfied, however, that the vitality of the stock is good, you might try such a mating. It is never to be recommended, but it is better than brother and sister. It is not easy for one sitting in an office to advise on such a mating as this, because it is necessary, when considering a close mating, to know the history of the stock, and to see every individual in the pen. I would, however, strongly advise you not to try mating brother and sister.

N. P. D. (Bucks). The bran used in this formula is inferior, not good enough for the purpose, but the other ingredients are satisfactory.

The price is fair, as prices are now. From your description, I cannot say definitely as symptoms are always deceptive. The pullet appears to be suffering from acute kidney disease, and I do not think she will be much good. Dieting is the most important factor in such a case. Do not give any animal food. Feed principally on bread and milk (not in a sloppy condition), a little ground oats, and plenty of fresh green food, but the case appears to me to be a very bad one, and there is not much hope of a cure.

M. F. E. (Erchfont). Beechnuts contain a poisonous oil which is injurious to some animals, notably horses. I cannot say what their effect would be on poultry, but I do not think that they are worth the trouble of collecting for the purpose of feeding.

E. J. L. (Chelmsford). The best breed for your purpose would be the Rhode Island Red. A good plan would be to hatch a few for future breeding stock in January, and the remainder in March. Yes, you could get some good eggs for your future breeders in the first batch, and cheaper ones for egg production in the second. The incubator and hover you mention are both good ones. You would want two hovers.

"Hopeful" (Retford). You must give up the spice and the mustard, as these have no food value whatever, and the former is only an irritant. Give the following wet mash:—Four parts sharps, one boiled vegetables, two maize meal, and one meat and bone meal or fish meal. As grain, give two parts wheat and one good plump oats. Do not give whole maize. Limestone grit will answer all purposes. Feed the mash in a crumbly moist condition; be sure it is not sloppy.

POST-MORTEMS.

E. W. This was a very gross case of acute generalised tuberculosis. It is a very serious matter, because the droppings contain myriads of T.B. and infect food and water of others, and it is believed that pigs also contract it from fowls. Suspects should be promptly removed and **burned** when killed. Thorough disinfection is advised. Resting the land, while liming, sooting, and salting too. There is a leaflet, No. 78, published by the Ministry of Agriculture, which we should advise you to carefully consider. It will be sent free on application to the Secretary, 10, Whitehall Place, S.W. Your application need not bear a stamp.

H. B. G. The pullet had the abdomen flooded with egg material, several of the ready-formed yolks having collapsed under the pressure of a broken egg high up, and too rapid formation above it, and the presence of abdominal fat nearly an inch thick. We should prescribe a 24-hours' fast and depleting measures such as a scruple of sulphate of magnesia every day for a week or ten days, and a reduction of food. Better lose a few eggs than birds, eh?

K. The white spots are calcified cysts (eggs) of the skin parasite of the mange class, and this one is known by the name of Laminosioptes cysticola gallinarum. They are perfectly harmless. We are sorry you did not send the bird, so that a satisfactory examination could be made. Cock birds of the second and subsequent seasons are frequent subjects of heart disease, and you are probably right in assigning his trouble to that organ.

B. P.C. The pullet was the victim of gout; the heart, liver, and other organs being thickly covered with urates, and having the appearance of having been dusted with flour by a dredger. The diet is too stimulating, and the remedy is depletion, by a 24-hours' fast, and then for a week or more fifteen grain doses of sulphate of soda in the morning mash.

M. M. We find that the ovarium was diseased, and attribute the bird's death to absorption of septic matter from the dead yolks. We expect to find the Bacillus pullorum, or else coccidiosis organisms, when microscopically examined. We should like to know if this bird was associated as a chick with any subjects of B.W.D., as we are investigating the subject of transmission in the egg?

J. F. A. R. Post-mortem examination of the pullet showed that death was due to rupture of the liver, and haemorrhage into the abdominal cavity. The breast was extensively bruised, and some bleeding had occurred between the skin and muscle, from which we conclude that external violence was the cause, the liver being healthy and no signs of disease in other organs.

LEENEY & SAUNDERS, M.R.C.V.S.,
Avian Pathologists.

POULTRY CONFERENCE AT GLOUCESTER.

What should prove to be an interesting and useful conference is being arranged by the Agricultural Education Sub-Committee in Gloucestershire in conjunction with the Gloucestershire Laying Test Society. The Conference will be held in the Shire Hall, Gloucester, on November 22nd, under the chairmanship of Lord Bledisloe, and an item in the programme will be the presentation of awards and trophies to the successful competitors in the 1923-24 Laying Competition, by Lady Bledisloe. The principal speakers in the Conference are:—Mr. P. A. Francis, of the Ministry of Agriculture, who will deal with "The Value of the Laying Tests"; Mr. E. T. Halnan, M.A., of the School of Agriculture, Cambridge, who will discuss "Poultry Foods and their Feeding Values"; and Mr. Thomas Hedges, of the Harper-Adams' Agricultural College, will talk about some of "The Pitfalls to Avoid in Poultry Keeping." A hearty welcome will be extended to all poultry-keepers who would like to attend, and accommodation for anyone wishing to stay the night can be reserved by writing to the Agricultural Organiser, Shire Hall, Gloucester.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

CHAPTER IV.

During the first season we trap-nested our pullets, at first using numbered rings, and eventually coloured celluloid bands to denote numbers. This trap-nesting, even with only a hundred or so birds, took a terrible lot of time. In a lucky moment, at the Dairy Show, I happened on Hogan's book, "The Call of the Hen," which I read through with the deepest interest. Having grasped the main idea, I proceeded to grasp my trap-nested pullets and test them by the Hogan system, jotting down their egg-laying capacities according to Hogan, and then comparing these figures with the actual trap-nest records of many weary months. The results were so astoundingly alike in practically every case that I forthwith scrapped trap-nests and relied entirely on the handling test. After three years' practical experience of this, I can only say that it is good enough for me.

Mr. Newman has remarked, with much truth, that the "head points" are all important when judging the layers. I entirely agree, but I should like to add that after "Hoganizing" thousands of hens I have still to come across a really good "handling" hen with really bad head points. Frequently, however, I have picked up a hen with a kind of nonentity of a head—not really a good head and yet certainly not a thoroughly bad, criminal type—and here I have found the handling test invaluable as a check on the bird's real value. Usually such birds are almost worthless, but occasionally they test really well, and do not get the sack. Again, it may happen that one has to test a batch of birds in such poor light that it is impossible to see their heads, and in such a case I know that I can rely on the Hogan test with absolute safety. I have found the same general facts apply to cocks—that is, those that handle best are almost always those that would be selected as the chiefs by their appearance alone. The opinions I have arrived at up to date in regard to this debateable point of trap-nesting versus handling may be summarised thus:—

LAYING HENS (including prospective breeders).—The Hogan test is quite good enough to select by.

MALE BIRDS FOR BREEDING PEN.—I think it wiser in this case to use cocks from trap-nested stock, showing a satisfactory GUARANTEED egg-record of dam and dam's mother. This is simply because I do not believe in taking any chances whatever with such an important gentleman as the father of the family. The bread-winner should always be shown extra consideration.

During this second season I found that Lady Hearson and Mrs. Tamlin between them were incapable of the strain of producing such a large number of youngsters as I required in order to keep up my stock of pullets. We therefore reluctantly decided to give notice to these two faithful servants and to invest in something more massive. Using the S.P.B.A. discount system, I managed to buy two 250-egg Gloucester incubators. The chief thing that struck me at first when I unpacked these machines was their vivid orange colour. I do not think Mr. Godfrey ought to dress his creations up in party colours when he sends them to the North of Ireland. Of course, they are comparatively safe up here, but think what a time they would have had in Dublin or Cork! Remember, they say in the South that up here the orders are that a special constable is stationed beside every laying hen so that he may stamp the Union Jack on the egg the instant it is laid, and they also affirm that it is a criminal offence in the Six Counties to serve a poached egg on spinach to any member of the Northern Government on account of the red, white, and green of the luscious morsel reminding the eater of the Free State Tricolour. However, let us pass on from this Colour problem.

I now moved the two Gloucester incubators into a disused stable, and started operations. I should like to say here that, though I am not a lucky incubatist, still I am a very ingenious one. I am perpetually trying experiments with a view to really making my machines hatch every hatchable egg. For the first part of the season in question I curbed my inventive instincts and stuck to the maker's directions. The results were only medium—about 50 per cent. of the eggs hatched out. Sometimes I got a very good hatch, sometimes a very bad one; and there was no outward and visible cause to account for the difference. My temperatures were all correct, the lamps gave no trouble, so I began to suspect the moisture problem. I purchased four "Tycos" hygrometers, and used them religiously. I soon found that the Gloucester was incapable of putting the Tycos to anything like the reading which the Yankee makers wanted. (America had not "gone dry" in those days, and they advocated plenty of moisture, even if it was only water.) I began to footer round with trays of wet sand under the incubators, trays of hot water round the room, buckets of water spilt on the floor, wet towels round my head, and I now expected things to go swimmingly. All in vain—the Tycos, like Gallio, cared for none of these things, and refused to move a fraction of an inch as far as its reading went. Filling the Gloucester water trays early in the hatch left the Tycos equally unmoved, as did wet lamp-wicks evaporating up the hot-air intake. Funnily enough, I did not dare sprinkle the eggs with water at this time, so that having failed to move the hygrometers, and longing to stamp on them, I put them back on the shelf and tried to pretend it was something unknown that was affecting the hatching.

At this time I was using "Acme" anthracite hovers to brood the chicks, having wearied of lying on my face in the wet grass trying to light small oil brooder lamps. The chicks, as they hatched, had to be moved from the incubator room to the brooder house—a distance of about a hundred yards. The instructions given are, to pick the chicks out of the nursery drawer when dry, put them in a warm basket, and carry them quickly to the brooder. Having done this once or twice, my wife hit on a much better plan, which is really our patent, but which I will be generous enough to reveal. Firstly, coax a good batch of chicks into your nursery drawer by means of a light held close to the window. Secondly, spread a blanket on the floor. Thirdly, remove the nursery drawer bodily with its load of chicks and place it in the centre of the blanket. Fourthly, fold the edges of the blanket well over the drawer—bundle it up, in fact. Fifthly, throw on top of all a light eiderdown stolen from your youngest child's bed (young children don't mind their bedclothes being used in this way, older people sometimes object). Sixthly, carry the whole thing away under your arm, and empty the chicks out under their brooder, counting the haul as you do so. Seventhly and lastly, replace nursery drawer in readiness for a second family gathering. This plan has many advantages over the more usual basket trick. Its only drawback is that a few chicks may topple over from the egg tray whilst you are away with the nursery tray. I always sweep these explorers out from the interior of the incubator with a long flue-brush before replacing the nursery tray.

This little scheme sounds very simple when you are told about it, but, like all these simple things, I consider it a brain-wave of the utmost importance.

We will now pass from the incubating problem pro tem, and get on with the brooding. I have for some time decided that this country is no place for young chicks to run about in, what with the wind and the rain and the snow and the hailstones—it's as much as a grown-up human being can do to exist in it. So I keep my chicks intensively for the first three or four weeks. All the books say I am wrong, and affirm that chicks ought to be hardened off by running out from their earliest youth. With such a universal consensus of opinion against me, I am somewhat chary of defending my methods. Perhaps there is only one thing to be said in their favour—THEY WORK. Of course, they don't work perfectly, but neither do the Spartan Brigade's methods work perfectly.

I might sum up the advantages and disadvantages of my system briefly as follows:—

ADVANTAGES.

(1) No gapes. (The chicks are past the "gape" stage when let out.)
(2) No losses from hawks and other vermin.
(3) No losses from cold winds and rain.
(4) Much greater comfort for the operator.

DISADVANTAGES.

(1) Greater risk of leg weakness.
(2) Greater trouble with the green food problem.

On the whole, I think the pros. outweigh the cons., and I have had considerable experience of both systems.

To revert to the rearing of 1921 and 1922. The young chicks having been duly dumped beside their anthracite stoves, the owners as a rule settled down beside them for a few moments rest betwixt the arduous hours of toil. Mr. Newman's system of chick-rearing was followed, and results were invariably satisfactory for the first week or so. Then began the troubles that beset the chicken-rearer. The little brutes went down on their legs and fluttered about the litter like half-burned moths. Every remedy known to "Eggs"—and several others—were tried. One might as well have killed the whole lot at once, for both cause and cure were equally unknown. This plague affected all the early hatches with far greater severity than the later ones, and the earlier hatches were always the finest and quickest growing chicks. At length, I began to suspect the anthracite stoves as the cause of the trouble, and invested in four "Pioneer" oil hovers to try an alternative method of rearing. The results were precisely the same, and yet hen-hatched and reared chicks from the same parent stock were reported to be giving no trouble and thriving well.

I had now two problems to deal with—the uncertain hatching in the Gloucester incubators, and the all too certain leg weakness in the brooder houses. I think I have solved both problems after three years' experimenting, but at one time it began to look as if the unemployment dole might be my ultimate fate.

I think I forgot to say in a previous chapter that my second season's rearing with the four City brooders had been equally disastrous as far as leg weakness was concerned, though the first season's results had been comparatively good. On the first occasion the brooders were kept on a shelf in the conservatory, under which ran the hot-water pipes from the greenhouse boiler. On the second occasion the brooders were in the same place, but the greenhouse stove had been demobilized, owing to the high price of coal and the low state of my bank balance. Though the heat from the pipes was little enough at the best, it seemed just to have made the difference between failure and success with the City brooders, and hence I thought confidently that when I changed to heated brooders my troubles would be over. That the leg-weak tragedy had, if anything, become worse with the heated brooders seemed a mystery. Both my wife and myself thought about this leg weakness so long and so intently that we began to suspect we were getting leg weak ourselves. We were certainly beginning to get brain-weak.

Our great consolation was that numerous readers of "Eggs" were evidently in the same fix—or rather, their chickens were.

(To be continued.)

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

COUNCIL MEETING.

The monthly meeting of the Council was held at the Memorial Hall on Wednesday, 5th November. Present: The President (Mrs. C. Hunter) in the chair, Messrs. J. G. Kitson, John Smart, F. W. Wait, A. H. Paine, P. Hedworth Foulkes, E. J. Meekings, R. Fletcher Hearnshaw, J. H. Dowden, Lester Spurgeon, Miss Maddison, Dr. Crowley, The Treasurer and Secretary.

The President, on behalf of the Council, extended a hearty welcome to Mr. R. Fletcher Hearnshaw, the new member.

Before the business commenced, the President, in a few well-chosen words, proposed that a hearty vote of thanks should be accorded Mr. J. G. Kitson, the retiring President, for his splendid services to the Association during his three years of office. The President said they were all so well acquainted with the good work of Mr. Kitson, that it was quite unnecessary for her to remark upon it, but they so wanted their members to know how heartily Mr. Kitson's work was appreciated, and what a great factor he had been in the wonderful success of the S.P.B.A.

Mr. Bostock Smith, in seconding the vote of thanks, said he could only endorse what the President had said. Mr. Kitson's term of office had been a remarkably successful one, and every member of the Council was aware how much of that success was due to his hard work, enthusiasm, and the invariable kindness and courtesy. Every member of the Council recognised his great services, and their one desire was that this should be as fully recognised by the members.

The Secretary said that he should like to add his tribute to the splendid work Mr. Kitson had done. No Association could ever have wished for a better and more hard-working, or more kind and considerate President.

The resolution was then put to the meeting, and carried amid much enthusiasm.

Mr. Kitson, in responding, said that his whole term of office has been a real pleasure to him, and he was very proud of the honour of having been their president. The three years had been one of wonderful success and progress, and that was, in the main, due to the enthusiasm of every member of the Council and the hearty goodwill with which they all worked together. They were all proud of their Association, and they meant its progress to be continuous. He thought that the formation of the National Poultry Council had also greatly assisted them.

The Secretary's Report.—The Secretary reported that 267 new members had been elected during the month of October. He thought that it would have been much larger had it not been that the General Election had intervened. During the months of September and October no fewer than 499 new members had been elected. Their stand at the Dairy Show had been a great success, and preparations were now being made to make it as attractive as possible at the Crystal Palace Show on the 18th, 19th, and 20th.

Treasurer's Report.—The Treasurer submitted his report, which he said was again highly satisfactory. He moved that the sum of £750 should be invested in five per cent. War Loan. This was seconded by Mr. Fletcher Hearnshaw, and agreed to. He further proposed that a vote of thanks should be accorded to the Auditor for his services, and that he should be reappointed. He referred to a letter from Colonel Langdon, respecting the method of keeping the accounts. After a discussion it was proposed by Mr. Wait, seconded by Mr. Smart, that a letter be sent to Col. Langdon to the effect that the accounts had satisfied the Auditor and the Council, and they could see no good reason for changing the system.

"Eggs" Committee Report.—Mr. J. G. Kitson, Chairman of the "Eggs" Committee, reported that the circulation was still rising, and all was going along satisfactorily. It was proposed to offer prizes for designs of poultry-houses, and the matter was left in the hands of Mr. Bostock Smith and the Secretary.

Food Purchase Committee.—This resolution re-referred back by the General Meeting, was considered. The Secretary was instructed to write to Messrs. Malman, Hemelryk, Coates, and Major Few, asking them if they would serve on the Committee of Investigation, with Mr. Dowden, Mr. Bostock Smith, and the Secretary, who would represent the Council.

Suggested Experimental Work.—Mr. Meekings proposed that it would be in the interest of members if further experimental work were carried out during the coming spring. He said they might undertake some useful practical experiments which would be of real benefit to their members, who were keenly interested in this work. The Secretary stated that he knew both Miss Malcolm and Mrs. Pember were quite willing to place a piece of land at the disposal of the Council and to conduct the experiments for it. The resolution was seconded by Mr. Lester Spurgeon, and carried. The experimental committee elected were: Mr. Meekings, Mr. Spurgeon, Mr. Foulkes, and the Secretary.

The date of the next meeting was fixed for Wednesday, 17th December.

WHY?

At the end of the financial year we had 6,031 members of the S.P.B.A. That is a very wonderful record, and is a testimony to the vitality, popularity and good work of the Association. But there are over 12,000 readers of "Eggs," and the Council sometimes ask why such a big proportion of our readers do not become members; I cannot answer this question, and can only suggest that it is because some of them think they are not qualified for membership. Very often someone writes and asks for information, and says he would like to become a member, but he does not trap-nest his stock. That is not necessary. You need only trap-nest stock which you want registered; or someone will say they are only in a small way, and they understand that the Association is only meant for big breeders and commercial egg farmers. That is altogether wrong. Most of the big breeders and commercial egg farmers are members, but there are hundreds of others who are back-yarders, or who keep only 100 or 200 birds, who are also members, and keen ones, too. We are out to give advice and help everyone, big or small. But we are not trying to bribe you into becoming members, neither is the Council after that five shilling subscription, although, of course, funds are necessary to enable it to achieve the objects of the Association. What we want is your co-operation, your brains, your experience, and the information you may be able to supply. We want you to realise that this industry of ours badly needs organising, and the stronger the S.P.B.A. becomes the greater the opportunity of attempting it. With your individual and combined help we can achieve a great deal more than we are able to do now. We all realise that the prosperity of the individual depends on the prosperity of the industry. It is a very narrow view to take before you join an association to ask: "What am I going to personally gain by it?" You are bound to gain by it, either directly or indirectly, and you can also help, apart from your five shilling subscription, even although you may be a novice. Often a question asked by one who claims to be nothing but a beginner has started a train of thought which has been most helpful. Everyone who becomes a member contributes something towards the work we are doing, and the greater work we have to do.

LATE HATCHING.

We have often discussed the question of early hatching, but very seldom that of late. Now we have Mr. Adock's very interesting letter, which appears in another column. He has not gone far enough yet to prove anything; the fertility was good, so was the hatchability and the rearability. But what of the profit? We may expect these chicks to begin to lay soon after Christmas, when eggs are becoming cheap, and there is no reason to suppose that they will continue to lay longer than those which were hatched in April. That is to say, they will moult at the same time. What would be interesting to know is whether any of our readers have any records of November and December hatched pullets, when they began to lay, and whether they proved profitable as layers. My experience with late-hatched chicks has been that they generally lay very small eggs.

SOME EXPERIMENTAL WORK.

As will be seen by the report of the Council meeting, it has been definitely decided to carry out more experimental work at Wellingham, where Miss Malcolm and Mrs. Pember, who have done such splendid work for us during the last two years, have again placed their plant and stock at the disposal of the Council. I can do more than indicate the general lines of the experiments, details will follow later. It is proposed to erect a house and place therein some 200 chicks, and endeavour to see whether we can raise them from the shell to the productive stage intensively, and perhaps the experiment will be continued with a view of finding out whether we can breed healthy and vigorous chicks from intensively-kept stock. As we are very desirous of discovering something of the effect of floor ventilation as a preventative of leg-weakness, one half of the house will have a specially-constructed floor, and the other will be the usual wooden floor; further, we want to know a little more about light and its influence on development. I do not mean artificial light, but a particularly well-lighted house, as compared with one which is not well lighted. In addition to this, the house will be blue-washed. The other experiment will be connected with the feeding. On one formula last spring we got some very satisfactory results, but the number of chicks was not sufficient to warrant our recommending it for general use. This season it will be carried out on a much larger scale. As it was a commercial formula, if it is successful under the new test, we shall find it most helpful, as the small lot of chicks which were tested on it last time developed rapidly, were vigorous and healthy, and have grown into splendid pullets.

APPLICANTS FOR MEMBERSHIP.

Harris, Aubrey S., Balsall Street, Balsall Common, near Coventry.
Abbey, Horace, Oakdene Yard, Woodlesford, near Leeds.
Somerville, R. B., Clermont-Rathnew, Co. Wicklow, Ireland.
Boyes, R., Pine View, Chilworth, Guildford.
Nash, Christopher H., 372, Hale End Road, Highams Park, Chingford, E.4.
Bygate, Capt. C. M., "Tylecote," Brompton-on-Swale, Catterick, S.O. Yorks.
Bailey, W. H., Bank's Lane P. Farm, Heckington, Lincs.
Tuke, Mrs. E. H., Hundalee Cottage, Jedburgh, N.B.
Hope, W. H., Stewton, Louth, Lincs.
Slee, Thomas, "Sunny Brae," Pensby Road, Heswall, Cheshire.
Woodward, W. S., Oak Poultry Farm, Burbage, near Hinckley.
Robinson, Wm. F., Brookside, Upton, near Birkenhead, Cheshire.
Mundy, Isaac, 40, Haddon Avenue, Aintree, Liverpool.
Adair, Thomas, Kirkton Gardens, Burntisland, Fifeshire, N.B.
Weighill, M.C., Capt. W. G. S., The Forge, Althorne, via Chelmsford, Essex.
Booth, Miss C., Yore Croft, Ripon.
Heathcote, Miss K. H., The Hermitage, North Mundham, Chichester.
Fleet Poultry Appliance Works, King's Road, Fleet, Hants.
Bagshawe, Henry, Priestcliffe, near Miller's Dale, Buxton.
Kearsley, Mrs. E. R., Rose Hill, Euabon, Wrexham, Denbighshire.
Lee, J., 4, Holden Road, Blundellsands, near Liverpool.
Chattaway, W., 1, Rectory Road, Bluntisham, Hunts.
Wolstencroft, N., Spikemead Farm, Lowfield Heath, near Crawley, Surrey.
Thomas, J., Nashmead, Nash Grove, Wokingham.
Dods, John, Gash Manse, Auchterarder, Perthshire.
Sayers, B., 39, Engayne Gardens, Upminster, Essex.
Cox, Miss E. A., Elmton Park, Chesterfield.
Sherborne, Lord, Sherborne Park Poultry Farm, Sherborne, Northleach, Glos.
Slack, Austin, Sherborne Park P.F., Sherborne, Northleach, Glos.
Missenden, A., "Sunningdale," Wing Road, Leighton Buzzard.
Leslie, Miss M. A., Junction Road, Kirkwall, Orkney.
Thompson, Herbert L., Brick Green Lane, Barkisland, near Halifax.
Phillips, Mrs. R. Shaw, Crescent Drive, The Downs, Brighton.
Sussams, T. W., "Wisteria," Crescent Drive, The Downs, Brighton.
Walpole, H., Khandells, Crescent Drive, The Downs, Brighton.
Shaw, Harold, "Meadowside," Hem Heath, Trentham.
Porter, Wm. Edwin, 1, Gladstone Terrace, Brighton, Sussex.
Bentley, A. R., 14, Harold Street, Bingley, Yorks.
Deighton, G. H., Brow Road, Haworth, Keighley.
Robinson, A., 52, Main Road, Denholme, Bradford.
Marsden, Miss J., Higher Shann Farm, Keighley.

KEIGHLEY AND DISTRICT BRANCH.

November 12th, 1924, will be a date long remembered by the members of the Keighley and District Branch, when Mr. Tom Newman paid the Society a visit, representing the National Poultry Council and the S.P.B.A. This branch is affiliated to the N.P.C., and it was with pride and affection that Mr. Newman was welcomed. Mr. Frank Snowden presided. A special members' meeting had been called for 6.30 p.m., when Mr. Frank Lewiss was elected Treasurer, Mr. Downsborough having resigned on account of his removal to a distance which prevented his attendance regularly. Messrs. F. Snowden and H. Reynard were elected Executors for the £50 invested by the Society in the Yorkshire Federation Laying Test, Ltd. Two cups are now offered to members competing in the Yorks Federation Laying Test at Otley, and it was resolved that as the S.P.B.A. Challenge Cup was originally offered for pullet with best score in the whole test, the "Mrs. Wilson" Cup be awarded to the owner of pullet with best score in the opposite section, either light or heavy breed. On rising to make the presentations, Mr. Newman remarked that a lady ought to have presented the cups and medals, etc., as she could have done so more gracefully; but no one could outrival the manner in which Mr. Newman courteously and tactfully carried out his duties. The winners of the various trophies thanked him most suitably. After the conclusion of the presentations Mr. Newman gave a lecture on "Breeding," which was much appreciated. Many questions were asked and answered, and as everyone seemed satisfied Mr. Ed. Hodgson proposed a vote of thanks to Mr. Newman. Mr. Wilson seconded the motion, which was unanimously carried amidst rousing cheers. Mr. Wilson proposed a vote of thanks to the Chairman, and said that Mr. Snowden's remarks during the evening amounted to a lecture. This also was heartily agreed to.

Mr. Newman and Mr. Snowden having replied with thanks, Mr. Snowden proceeded to point out the advantages of being a member of the S.P.B.A. and Keighley Branch, with the result that a landmark in the history of the branch was reached. Four new members were enrolled, which brings the total up to one hundred.

When Mr. Snowden was elected as President in March, 1924, he said he hoped the number of members would be doubled or even trebled during his presidency. The double mark has now been reached, and it is hoped that every member will do their best to reach the treble mark before Mr. Snowden's term of office expires in March, 1925, just to show they appreciate the fact that, although Mr. Snowden has to attend Council and Committee Meetings all over England, he still takes time to attend the meetings of the Society and look after its interests in every way possible. The evening passed all too quickly, and it was with dismay that the members learnt that Mr. Newman's visit was over, he being due in London the next day.

Turkeys.

DISEASES.

By BERNARD REDDAWAY, M.S.P.B.A.

The flock should always be watched, very carefully, for any sign of ill-health, because if steps are taken to stamp out any illness the moment it appears, there should be no epidemics, which are the great danger where a large number of birds is kept.

Nearly all the complaints that turkeys are liable to suffer from can be cured by the same methods that are successful in the treatment of fowls, so it will not be necessary to deal with such illnesses and diseases here.

If the birds are kept under the best methods there should not be any illness amongst them, as if a bird is in really good condition it is able to resist any germs which may come its way.

For a common cold, which if taken in time is quite easy to cure, but if neglected may turn into roup or some such serious complaint, there is nothing quite as good as Pot. Permanganate. A few drops of this put into the drinking water will do wonders, and if the cold is very bad it is advisable to hold the bird's head under the water for a few seconds, so as to allow Pot. Permanganate to enter the nose and throat.

The disease which all turkey-raisers dread is coccidiosis or entro hepatitis. Unfortunately all he care in the world will prove unavailing against this terrible turkey scourge, if the breeding birds have it in their blood and transmit it to their chickens through their eggs.

Different people advocate different methods of treating it, but perhaps Mr. George Palmer's method is the most reliable, as many people seem to get very good results by adopting it. Of course, it is by no means perfect, but then nothing is.

The land is the first thing to consider. It must always be kept fresh. If the subsoil is not chalk, it is very often advisable to dress the land with basic slag and sometime with kainit, whatever the subsoil.

Mr. Palmer uses carbolic acid for treating turkeys which are suffering from coccidiosis. Of course, it needs very careful handling, as all poisons do.

First of all it is advisable to bring down the strength of the acid by mixing one part of carbolic acid B.P. with nineteen parts of water, a 5 per cent. solution is thus obtained.

Perhaps it would be better to give the method of giving the acid in Mr. Palmer's own words:—

"For the young stock one dram of the 5 per cent. solution is the daily dose for the 30 two-day-old turkey chicks, 20 seven-day-old turkey chicks, 10 one-month-old turkey chicks. It should be mixed with further water, enough to make the wet mash for breakfast. Pour in meal, stirring all the time until stiff, work more meal in by hand until crumbly, and feed."

The very greatest care must be taken in the selection of the breeding birds, as they are very often to blame for any outbreak of this dread disease which may occur.

(To be continued.)

Bees and Poultry-keeping

By E. W. D. MADOC.

NECTAR SECRETIONS.

This is a subject about which comparatively little is known to anyone, but it has such far-reaching effects on the fortunes of the bee-keepers that it deserves some attention, at least from everyone interested in the production of honey.

The main essentials for bountiful nectar secretion are: The right type of flowers in sufficient quantity, on the right type of soil, with a sufficient water supply and a suitable temperature. By the right type of flower we mean one that past experience has shown to yield a large amount of honey under suitable conditions, amongst these may be mentioned white clover, heather, sanfoin, mustard, charlock, lime sycamore, willow and many others.

Few people seem to realise that even the best honey plants must be present in considerable numbers to be of any perceptible use, and for this reason it is rarely, if ever, worth planting flowers solely for the honey they may yield, although it is necessary to have suitable crops in quantities amounting to several acres to make an appreciable difference in the honey crop. The fact that bees will fly two miles or more from the hive, places a total of many acres of even thinly-scattered crops within their range—for instance, the wild white clover growing by the roadside often forms the main honey crop in many localities.

The type of soil has considerable effect on the nectar production of the same plant; wild white clover yields far more heavily on soils containing sufficient lime than on acid soils deficient in this respect. Apart from this many of the most important honey-producing plants have a decided preference for a certain type of soil, and are not found at all on the wrong type. Sanfoin is always grown on ground having a chalk subsoil, and containing plenty of lime, heather, on the other hand, will always be found on a sour acid soil, lacking in lime.

Sufficient water must be present in the soil for the plants' needs. Lack of sufficient water is shown by drooping or wilting which occurs, because there is not sufficient water in the plant cells to distend them, and so hold the leaves and young stems rigid. No water secretion or growth takes place in a plant in this state.

Temperature is, perhaps, the most important factor in its influence on nectar secretion; generally speaking, the higher the temperature the better, but the temperature required by different plants varies widely. Wild white clover and limes both require a high temperature for rapid secretion, sanfoin and raspberries will yield at a comparatively low temperature, while heather yields at a lower temperature still. Incidentally the above three examples were all illustrated this year in my own apiaries. During June, when the white clover and sanfoin were in bloom, the bees went straight over fields of white clover to sanfoin, and brought in a heavy crop of sanfoin honey until the sanfoin was cut, when the flow came to an abrupt end, although the pastures were full of white clover in full bloom. The temperature was too low for nectar secretion in the clover, but high enough for sanfoin. Later in the season one apiary bordered on a field of second-cut sanfoin in full bloom, another apiary was a few miles distant on the heather. The bees on the sanfoin stored nothing at all, but the heather apiary managed to store a fair crop on the few days when the bees were able to leave their hives.

(Continued at Foot of Next Column.)

EDITORIAL NOTES.

The article appearing on page 339 of this issue, entitled "The Internal Mechanism of the Egg-laying Machine," is the first of six papers which Dr. Rosedale is delivering to the Wadhurst Branch of the S.P.B.A. The second article will deal with the "Structure of the Mechanism" (The Bird I.); Third, "Working of the Mechanism" (The Bird II.); Fourth, "Running Repairs I." (The Physiology of Feeding); Fifth, "Running Repairs II." (Food requirements for different purposes); Sixth, "Keeping the ball rolling" (Use and application of farm foods to practice).

IMPORTANT.

We wish to draw our readers' attention to the fact that on 29th November onwards all birds for post-mortem examination should be sent to Major E. J. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Major Saunders, who has had a very distinguished career, has a special knowledge of birds, being associated with the Canadian research work into Avian Diseases, while holding the position of Professor of Surgery at the Toronto University. He has had a world-wide experience, and has worked for some months with Capt. Leeney, M.R.C.V.S., whose articles and post-mortem work have proved of such value to our readers, and who is now taking a temporary rest.

THE SUSSEX POULTRY CLUB.

A committee meeting of the Sussex Poultry Club was held at 3, Vincent Square, London, on Tuesday, 4th November, at 12 o'clock. Present:—Mr. J. Russel, President (in the chair), Messrs. T. R. Robinson, A. P. F. Grant, Amey, Cree, and the Secretary, Rev. H. Mayall. Apologies were received from Messrs. Goode and Ashburnham.

The minutes of the last meeting were read, confirmed, and signed.

The resignation of the Secretary, Rev. H. Mayall, on account of pressure of other work, as previously announced, was accepted.

Mr. Russel moved, and Mr. Grant seconded, that Mr. Clem Watson be appointed Secretary. This was unanimously agreed to.

Mr. R. Reeder was asked to act as Scrutineer for the election of officers and judges.

HAROLD MAYALL, Hon. Sec.

POST-MORTEMS—Continued.

B. W. The cause in the case of the Barnevelder pullet was uraemic poisoning, due to chronic disease of the kidneys, which were unable to perform their normal functions of eliminating body waste. To any others showing like symptoms, twenty grains of Epsom salts, twice weekly, given either in the mash or drinking water, will help to promote elimination by clearing the kidney tubules of effete matters.

B. The post-mortem on the bird with the green leg ring revealed an abcess in the left lung. The illness, untriftyness, etc., are quite consistent with the post-mortem finding, as absorption from this suppurative centre would be quite sufficient to produce the symptoms you noted. The other bird was suffering from peritonitis, due to a ruptured oviduct, the prolapse that occured being a frequent sequel to the violent straining set up. Over forcing nearly always produces a percentage of ovarian and uterine trouble, so that your lowering treatment is quite correct and may prevent further losses from this cause.

R. R. S. The post-mortem examination of the Light Sussex hen showed the cause to be apoplexy, a large blood clot being present in the brain. As apoplexy is due to excessive blood pressure and weakness of the walls of the blood vessels, it is advisable to avoid over-stimulating foods and to lower the tension of the system by a course of salines, such as glauber salts, fifteen grains per head daily for a week or ten days. The salts may be given either in the mash or in the drinking water.

F. A. F. Inflammation of the kidneys was very marked in this bird, but the cause I could not determine. The bowels were also much inflamed in places, as if some irritant had been taken. I regret that you have not complied with the rules and sent a covering letter and the nominal fee, as there might have been some helpful pointer. We are not magicians, and sometimes fail altogether to ascertain the cause of death after making the most exhaustive examination.

M. H. Blood poisoning from the necrotic sore in the comb is the condition we find in this bird. Earlier attention with an antiseptic mixed with a grease base might have saved him. We do not regard it as infectious to other fowls, but as being of accidental origin.

Pioneer Poultry Farm,
Kalaw, Fedtd. Shan. States, Burma.
11th June, 1924.

"Dear Sir,—Your excellent paper is worth all the other poultry papers put together. I glance through the others and read yours from beginning to end for fear I shall miss something useful."

Yours faithfully,
(Signed) DOUGLAS J. ANSELL.

OFFICIAL OPENING OF THE SIXTH MIDLAND TEST.

Saturday, November the 22nd, at 3.30 p.m., has been arranged to hold the sixth official opening of the Midland Egg Laying Test at the Midland Federation of Feather and Fur Societies' Instructional Poultry Training Ground, Handsworth.

Mr. P. J. Hannon, M.P., the Federation President, has promised to attend, also Mr. Edward Brown, F.L.S., of the National Poultry Council, has intimated his intention of being present, in addition to numerous other officials and gentlemen of the Agricultural World.

Following the opening and tour of inspection around the pens, the party will adjourn to the New Inns Hotel, where tea will be partaken at 5 p.m., after which various topical addresses will be given.

Those who attended last year will remember the capital attendance on that occasion, when the Ball Room at the hotel was beautifully laid out, by kind permission of the Proprietors, Messrs. Mitchells and Butlers, who have again given permission for the room to be used on the 22nd.

The seating accommodation for the tea and addresses is limited, and it is requested that early intimation be given to the Secretary at 63, Old Meeting Street, West Bromwich, by those poultry-keepers who wish to be present, so that disappointment will be avoided.

Tea will be charged at the nominal price of 1s. per head, and all small poultry-keepers are particularly invited.

In addition to the usual programme, a comprehensive display of modern poultry-house models will be displayed, and an instructive lecture given on the subject of "How and What to Build as a Poultry House?"

WYE COLLEGE FOUR MONTHS' WINTER LAYING TEST, 1924-25.

Conducted in conjunction with the N.U.P.S. at
The South-Eastern Agricultural College, Wye, Kent.

The birds arrived for the Test on September 16th and 17th. They were examined by the Selection Committee, and a certain number were rejected for various reasons. Forty-four pens were accepted, giving a total number of 176 birds. The birds were given until October 1st to settle down, and on that date the recording of eggs was begun.

The birds this year do not seem to have been as carefully selected as in previous years. Many were laying on arrival, and, as a result of the railway journey and change, have received a severe check, and in some cases have started a partial moult. Others arrived in poor condition and immature; they will doubtless spend a considerable time in putting on flesh before they start laying. This poor condition of the birds has not been observed to so great an extent in the two previous Tests, and is probably due to the lack of fine weather during the rearing season.

Each entry in the Test consists of four pure-bred pullets hatched in 1924. The Test is limited to residents in the counties of Kent, Surrey, and Sussex.

All the birds are trap-nested, and the eggs weighed; small eggs are discounted so as to encourage the production of strains which lay large-sized eggs only.

The Test is divided into six Sections, viz.: White Wyandottes, White Leghorns, Rhode Island Reds, Light Sussex, A.O.V. (Heavy Breed), and A.O.V. (Light Breed). Separate awards are made in each section, and consist of Silver Cups, Medals and Certificates of Merit.

The leading pens in each section are:—

Wyandottes.—Capt. H. C. MacKenzie, 46 eggs; H. J. Willis, Esq., 41 eggs.

Rhode Island Reds.—F. W. Harling, Esq., 64 eggs; J. H. Dowden, Esq., 41 eggs.

Light Sussex.—G. N. Worters, Esq., 54 eggs; Mrs. H. C. Cowan, 42 eggs.

White Leghorns.—A. E. Hardy, Esq., 58 eggs; Mrs. Canning Roberts, 37 eggs.

A.O.V. (Heavy Breed).—Messrs. Campkin Bros. (Buff Rocks), 43 eggs; Capt. H. C MacKenzie (Barnevelders), 12 eggs.

A.O.V. (Light Breed).—Swanley Horticultural College (Anconas), 40 eggs; Messrs. Venn Carr, Ltd. (Black Leghorns), 15 eggs.

Section Egg Averages (per bird).—Wyandottes, 6.82; Rhode Island Reds, 6.44; Light Sussex, 7.28; A.O.V. (Heavy), 4.62; A.O.V. (Light), 3.65; White Leghorns, 6.69; All Birds, 6.3.

Sunnybank Poultry Farm,
Saltburn-by-Sea, Yorks.
11th November, 1924.

"Dear Sir,—I appreciate 'Eggs' tremendously—there is something good on every page, and it is really the only Poultry Paper worth reading. I have found the other papers a sheer waste of time."

Yours faithfully,
(Signed) (Miss) E. ARMSTRONG.

Correspondence.

WHAT CONSTITUTES A PULLET?

To the Editor of "Eggs."

In my long experience as a poultry breeder I have found that there are erroneous ideas even among those who might be expected to know better—i.e., breeders of large experience.

First, a pullet must not have laid an egg.

Second, must not be moulting hen feathers, chicken feathers in birds well looked after, shed their feathers from 13 to 15 weeks.

Thirdly, must not prate as hens do after laying the first egg. Pullet prating is done in a very immature tone. After laying the first egg the voice becomes deeper and stronger.

VIRGO.

Re CANNING OF POULTRY.

To the Editor of "Eggs."

Dear Editor,—I was very much interested in the above article in "Eggs" of 15th October, 1924, and thought it might interest you, and perhaps be of some little use to some of your readers, if I described the method we have used successfully for some years in disposing of our surplus White Leghorn cockerels.

When the precocious youngsters begin to get about 1½ lbs. in weight, we visit their quarters and kill thirty or forty of them, and then proceed to skin and clean them, then place them in a large pan, adding salt and seasoning to taste, and as little water as possible, place on stove and boil about one hour.

We then have ready some thoroughly cleaned Kilner Vacuum preserving jars, in which we place the cooked chicken, removing all large bones, which come away easily, fill up with the soup and then add a saltspoonful of boracic powder—that is, about twenty grains to a 2-lb. jar. Now place the rubber ring in position, put on the glass lid, put metal screw on loosely, place jars on carrier, put in the pan, fill the pan with cold water until the jars are almost covered (not quite), place lid on pan, put on the stove and boil one hour. I may add that the outfit I use is just the ordinary outfit as supplied for fruit bottling. When the process is completed, lift out the jars, screw them up tightly, allow to cool slowly, avoiding draught. After twenty-four hours remove the screws, and try them to see if they are air-tight—i.e., lift up the jar by the glass lid, and if they will carry the weight of the jar they are air-tight, but if they are not properly sealed the lid will come off, and the boiling must be repeated. Store in a dry, cool place.

To open, place the edge of a knife under the glass lid and release. We have found them to be delicious after being stored in this way for twelve months.

We all know the great drag Leghorn cockerels are to poultry-keepers, and we think this a good way of relieving matters. If any of your readers would like to try the above, and do not find instructions quite clear, I should be pleased to assist if they would communicate their difficulty.

Yours faithfully,

M. TAYLOR.

LATE HATCHING.

To the Editor of "Eggs."

Dear Sir,—I think it might be of interest to some of your readers to know of the results obtained this summer in respect to late hatching. As in common with many others, my hatching results during the last spring were not as satisfactory as could be desired; my average hatched, both under hens and in incubators, were about 65 per cent., counting all eggs set, so by way of an experiment, I mated a Leghorn cockerel to a dozen Leghorn pullets of last year's hatching, birds that had been laying well during the winter and spring, and should by most accepted rules be getting somewhat exhausted.

Four hens were set in July on 56 eggs, two eggs were broken, and of the remaining 54 eggs only two failed to hatch; the 52 chicks thrived better than most of the spring hatches, in spite of a very wet and rough August. Up to the present only one chick has died through accidentally getting into its wrong coop, and most of the cockerels were distinguishable at about three weeks old. There are, I believe, 28 pullet chicks. I shall pen 10 or 12 separately, and hope, in due course, to give a return of their laying abilities, and I am hoping to come to the conclusion that, if we fail in rearing the necessary number of pullets in the spring, that we have still the chance to make up our required number of pullets later on in the season.

We are also carrying out another interesting experiment here, details of which I hope to place before you presently. That is, the exact cost of producing a pullet to the time it commences to lay sufficient eggs eggs to pay for its keep. In this case we had bad rearing results, the chicks being hatched rather late in the spring, so there are only a flock of 36 R.I. Red pullets instead of about 50. As no one at present seems able to tell us the actual cost of rearing a pullet, the information should be of some value to many. I may say we have kept accounts very carefully, so as to get the costs exact without having to assume anything.

Truly yours,

W. L. ADCOCK.

EXHIBITION UTILITY STANDARDS.

To the Editor of "Eggs."

Dear Sir,—On behalf of the Lancashire Federation of Utility Poultry Societies, through the medium of your journal, will you kindly publish in your next issue that only 25 per cent. of the Specialists' Clubs have forwarded copies of their standards. It is now fully two months ago since every Specialist Club was written to, and an announcement through the poultry press, in case any letters had miscarried, yet we cannot secure a united front on this most important question. On my own behalf, to those writers who maintained that no one particular section of the Poultry Industry could introduce a Standard workable for the whole of the country, they may now realise that success is often thwarted by those who could give valuable assistance.

This second appeal, it is hoped, will be more successful, and those Specialist Clubs who have not replied no doubt will do so in the general interest and welfare of the Poultry Industry.

The Lancashire Federation will complete their work, and at no very distant date, the completion meaning that up to the present six breeds only have been under review, but the BASIS of the Standard is passed, therefore to complete the work it is a matter of minor details and probably adjustments.

After the final work has passed the special committee of practical poultry farmers and the panel of judges, the Council will no doubt consider the best and wisest steps to be taken to secure general support and recognition throughout the industry.

In conclusion, friends, constructive not destructive criticisms.

Yours faithfully,
W. GROVE.

18, Harshall Road, Levenshulme.

"BOGUS NEWSPAPER STUNTS."

To the Editor of "Eggs."

Dear Sir,—May I be permitted to add my warning to that of "Reader," as to the above heading. I have had a similar experience, only slightly different.

All the *wool* was sent for the Fleece (ing), but as it started in July, I did not feel like wrapping myself therein.

I believe I have been fortunate enough to have escaped. I did sign for 12 copies, but I felt like seeing *one* before I sent cash, then the "Block" stunt came along. But I have had some experience as to the price of blocks, which made me cautious again. I did not send cash. All my notes were praised so highly that I wondered, but when I sent photos (the majority snaps) they were described as "excellent photographs"—again I wondered. I knew perfectly well this was not correct. Since my refusal of buying blocks I have not heard (about six weeks).

"INTERESTED READER."

THE INHERITANCE OF FECUNDITY.

To the Editor of "Eggs."

Dear Sir,—With respect to the principles of inheritance, outlined in my first letter on this subject, Mr. Mann's criticism is very much to the point, and suggests a field that needs investigating.

We must fix when a hen IS at the top of her fecund power, before we can further investigate whether it is at that time that she breeds her highest fecund progeny.

In the first place the experiments I introduced were published by a responsible and highly respectable American scientist through the well-known pages of "Harper's Magazine," and are not confined to the land of "skyscraper yarns," but have been carried out also in France.

Now the element of fecundity we are considering is exemplified in the case of the pigs. Here the term "fecundity" refers to the number of *young* actually born.

Are we, then, justified in assuming that a hen is at the top of her fecund power when she is merely laying the largest number of eggs? Is not hatchability to be included with egg laying in the constitution of fecundity?

We have been told so many times that vigorous hens laying a maximum of hatchable eggs are to be preferred to star performers in the trap-nest—even from the commercial egg farmer's point of view—that, I think the question is easily answered out of practical experience.

If, then, you will allow that hatchability is related to fecundity, the problem wears a less perplexing aspect.

Also, we shall have further very cogent reasons for expecting to find that the hen really does transmit her fecundity directly to her daughters.

Yours faithfully,
H. R. HAWARD.

"EAT MORE EGGS" CAMPAIGN.

The following subscriptions have been received:—

	£	s.	d
The Editor of "Eggs"	2	2	0
Mr. C. Streatfield	0	10	0
Mr. J. Porter	1	5	0
Mr. F. W. Wheeler	0	1	0
Mr. M. Bateman	0	4	0
Miss W. Mitchell	0	5	0
Hon. Mrs. Maxwell	2	2	0
Miss F. Meeson	0	2	6
Commander E. L. Cardale	0	5	0
Major A. Brewis	1	0	0
Mr. P. S. Campbell	0	10	0
	£8	6	6

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING FRIDAY, 14th NOVEMBER, 1924.

GRAIN AND FEEDING STUFFS.—English wheat has been a somewhat irregular trade during the week, and whereas average prices are lower at Bristol and Liverpool, they are higher at Hull and London. The average over all markets is 1d. per cwt. lower at 12s. 7d. Imported wheat is generally dearer, No. 2 Hard Winter averaging 14s. 8d. per cwt. against 13s. 9d. a week ago. Barley is a somewhat dragging trade, and even best samples of malting are not easy to place, while moderate lots find buyers with difficulty. Oats, both home-grown and imported, are very quiet, and prices favour buyers, English black oats averaging 9s. 10d. per cwt. against 10s. 4d. last week. Maize meets a slow enquiry and prices are a shade lower.

A further decline in prices is recorded for milling offals and some kinds of meals. Middlings especially are affected, a fall of 10s. per ton being reported from Liverpool and one of 7s. 6d. per ton from London. Maize meal averages £11 18s. per ton, a fall of 4s. on the week. Oil cakes are very quiet for the time of year, and prices, where quotably altered, are in favour of buyers. Egyptian seed cotton cake averages £9 11s. per ton, a fall of 7s. 6d. compared with a week ago.

MILLERS' OFFALS.—Bran (British): Bristol, £9; Hull, £8 17s; Liverpool, £9; London, £8 12s. Broad Bran: Hull, £10 7s; London, £9 15s. Middlings—Fine (Imported): London, £11 7s.; Coarse (British): Bristol, £10 17s; Hull, £11 5s; Liverpool, £10 10s; London, £9 17s. Pollards (Imported): Bristol, £9 5s; Hull, £8 15s; Liverpool, £9 5s; London, £9 5s. Rice Bran: Bristol, £9 7s; Liverpool, £9 2s. MEAL.—Barley Meal: Bristol, £13; Hull, £13 15s; London, £13. Maize Meal: Bristol, £12 5s; Hull, £11 16s; Liverpool, £11 17s; London, £11 12s. Maize Germ Meal: Bristol, £12 10s; Hull, £12; London, £11 15s. Maize Gluten Feed: Bristol, £12 5s; London, £11 15s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 18s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £20.

EGGS AND DEAD POULTRY.

Best grades of eggs are in limited supply and realise high values, while secondary sorts again meet a good market. Trade for dead poultry is firm, while rabbits, both English and Australian, are slightly dearer.

Week-end Prices—Eggs (per 120): British: 34s 0d, 32s 0d; Irish: 29s 0d, 27s 0d; Danish: 31s 6d, 28s 0d; Dutch: 34s 0d, 31s 0d; Russian: 17s 0d, 16s 0d; Belgian: 29s 6d, 26s 0d; Italian: 24s 0d, 21s 6d; Egyptian: 13s 0d, 12s 6d; Lithuanian: 18s 0d, 15s 0d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 9d, 1s 6d; Irish: 1s 2d, 1s 0d; Others: 1s 5d, 1s 2d. Ducks: 1s 2d, 11d. Geese: 1s 2d, 10d. Turkeys: 1s 10d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 3s 7½d; Second, 3s 5d. Birmingham: First, 3s 3½d; Second, 2s 7¼d. Bridgwater: First, 3s 7d; Second, 3s 6d. Carlisle: First, 3s 10d. Chelmsford: First, 3s 7¼d; Second, 3s 5½d. Denbigh: First, 3s 5d; Second, 3s 3d. Derby: First, 3s 4d. Dorchester: First, 3s 4½d. Exeter: First, 3s 6d. Hereford: First, 3s 3d. Ipswich: First, 3s 6d; Second, 3s 0d. King's Lynn: First, 3s 6d; Second, 3s 0d. Lincoln: First, 3s 4d. Llandilo: First, 3s 3d. Montgomery: First, 3s 0d. Newport (Mon.): First, 3s 3d; Second, 3s 0d. Norwich: First, 3s 6d; Second, 3s 0d. Oswestry: First, 3s 9d; Second, 3s 7d. Penzance: First, 3s 0d; Second, 2s 11d. St. Ives (Hunts): First, 3s 10d; Second, 3s 8½d. Salisbury: First, 3s 6d; Second, 3s 3½d. Shrewsbury: First, 3s 9d; Second, 3s 6d. Skipton: First, 3s 6d. Truro: First, 3s 0d. York: First, 3s 8d; Second, 3s 6d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 6d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 8d; Second 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 5d; Second, 1s 2d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Salisbury: First, 1s 5d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *3s 6d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 2d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 5d; Second, 1s 2d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

*Per Head.

"Eggs."
The Official Organ of the Scientific Poultry Breeders' Association.
Wednesday, November 19th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association

WEDNESDAY, NOVEMBER 26th, 1924.

Editorial.

PURE-BREEDS v. CROSS BREEDS.

In the "Daily Mail," of November 11th, the Agricultural Correspondent, writing on the Cross-bred Laying Test, remarks :—

> "The justification of this test is the fact that many of the pure breeds have become increasingly liable to diseases, more difficult to rear, and less productive. First cross birds are notably hardier than those of pure breeding, and certain first crosses are very prolific of eggs."

The seriousness of this statement is perhaps hardly realised by the writer. We may admit that a first cross is hardier than a pure-bred, and that certain first crosses are very prolific of eggs (we have known mongrels to be prolific of eggs), but the remainder of the paragraph is entirely misleading, is calculated to have a serious effect on our export trade, and result in a lessened demand for pure-bred stock, because it will be read by many thousands who are wholly ignorant of the true facts.

The fact that disease has been rife during the past three or four years by no means proves that pure-bred stock are increasingly liable to it. Climatic and environmental conditions generally are more often responsible for disease than inherent weakness in the stock. We have not yet tested cross-breds under modern systems of rearing.

In the old days, when B.W.D. was known as "White Scour," the percentage of loss, when an outbreak occurred, was not less than it is now; it is almost certain that the first cross will not show a greater power of resistance to the parasite of coccidiosis than the pure-bred. We have not the slightest evidence that it is less susceptible to roup and kindred diseases. There are some of our readers who have bought cross-bred stock, who can speak feelingly on this point.

The economic value of the first cross, as compared with the pure-bred, should be tested under modern conditions of rearing on a commercial farm, not in a laying competition. Let us see what they will do in flocks of 400, after they have been reared under anthracite stoves, in broods of 400.

We contend, and we think we can speak with as great a knowledge as anyone else on this point, that during the past five years there has been a distinct and continuous improvement in the vigour of the bred-to-lay stock in this country. Breeders have recognised that they have made mistakes which were inevitable, they have learned from bitter experience, and the mistakes of the past are not likely to be repeated. We are realising that the craze for records has been carried too far. It is hardly necessary to contradict the statement that pure-bred stock is less productive, on what grounds it is made we have no means of knowing, but we can say with confidence that the flock averages throughout the country are higher to-day than they have been before, and our pedigree breeders are breeding a higher percentage of pullets capable of laying 200 eggs or more, and, moreover, are breeding them with greater stamina.

The art of the breeder lies in overcoming the defects of his stock, and in effecting breed improvement. He can breed for constitutional vigour as easily as he can for heavy egg production, and he can combine the two ; to resort to cross-breeding is a retrograde step, and, in spite of all the opposition and arguments from those who favour it, we contend that in the course of a few years it will have a distinctly unfavourable effect on the stock in the country.

Why not face the problem in the way it should be faced? Breed for constitutional vigour, and acknowledge at once that our methods of rearing, housing, etc., are in a great measure conducive to disease, and that we know very little about nutrition. If we understood a little more about ventilation, particularly during the brooding period, we should hear very considerably less of the susceptibility of pure-bred stock to disease. Seventy-five per cent. of the mischief begins in the brooders and under the hovers, which are not only responsible for a high rate of mortality, but for the lowered resistant power of the survivors. If we studied the problem of ventilation as it should be studied, disease would not have been so rife as it has been during the past few years, and a great deal of the nonsense as to the susceptibility of pure-bred stock to disease would never have been written.

Readers of "Eggs" are now thoroughly awake to the importance of improved ventilation under brooders, and the necessity of studying it, in order to increase the resistant powers of the birds to roup and diseases of the respiratory organs, if it could be fully realised that in the great majority of cases these latter diseases are contracted on the

(Continued at Foot of Column on Next Page).

Modern Poultry Feeding.

By TOM NEWMAN.

THE CALCIUM SALTS.

I have received a very interesting letter from Mr. Roscoe on the above subject, which is given below:—

It is quite possible that the calcium content of the milk would vary considerably. In some districts the hay and other roulgage may be very deficient in lime, and unless this is supplemented in some form or other, such as by steamed bone meal, bone flour, or even finely-ground limestone, we can understand why such a deficiency would occur. It has been known for a very long time that a deficiency of calcium was the chief cause of rickets. As the vitamins must be derived from the foodstuffs, it is not surprising that the vitamin content of milk should also vary considerably. With regard to Dr. Fagan thinking it possible that many heavy milking cows may be producing milk which they cannot supply with the necessary quantity of calcium, it is interesting to note that Hart, McCollum, and Humphrey, fed a cow on a ration deficient in calcium for 110 days which gave off 5.5lbs. more calcium in milk and excrement than was in the feed. Another point of interest is that Hart and Steenbock found that the addition of magnesium salts to an otherwise well-balanced ration tends to cause a loss of calcium from the body. On the other hand, calcium seems to exert a favourable influence on the economy of iron in metabolism, inasmuch as it appears to be possible to maintain equilibrium upon a smaller amount of iron when the food contains abundance of calcium.

Some years ago when writing on vitamins, I remarked that it was very curious that the foods which were rich in them, were also rich in the calcium salts. It is very wonderful what Mr. Roscoe tells us, that if substances which lose their vitamin properties, are again exposed to ultra-violet rays, they again replenish themselves as before. How elusive these vitamins are, and shall we one day discover they are bacteria?

To the Editor of "Eggs."

"Dear Mr. Newman,—Perhaps the following information might be of interest to readers of 'Eggs,' although it is not directly connected with anything to do with matters relating to poultry.

"A friend who has taken over the Experimental and Investigation Department of one of the London Skin Disease Hospitals has lately been investigating certain obstruse diseases, about which, up to the present, very little has been known. In the course of his investigations he was obliged to go very carefully into the question of the effect of variation in the Calcium contents in the blood. In connection with the technique used to calculate these calcium contents, milk is used. Certain very delicate tests were made, which heretofore had not been tried, but results varied so greatly from those obtained by the older and less sensitive methods, that further investigations were made to find out the reason for these discrepancies. Suspicion eventually fell upon the milk, and it was discovered that every day the calcium content of the milk supplied to the hospital varied enormously. On certain days there was as great a difference as 50 per cent. between the Calcium contents of the current day's milk and that delivered on the previous day. The fat content of the milk remained up to the 3 per cent. standard requirements.

"Now, as Dr. Fagan pointed out, this lack of Calcium contents accounts for many mysterious cases of rickets in children, and of rats which have been experimented upon when fed with milk, for obviously if a child is fed upon a calcium deficient milk its bones will not develop. Again, the vitamin properties of milk were tested, and found to vary enormously. Why these variations occur is at present only a surmise, but are probably due to the fact that the Government stipulates that milk shall contain not less than 3 per cent. fat, but there has never been any stipulation as to the Calcium content. Therefore, if a large bulk of milk is tested and found to show a 5 per cent. fat content, it can be watered down until it shows 3 per cent., with the result that it still comes up to Government standard, as regard fat, but is hopelessly deficient in Calcium and vitamin properties.

"On the other hand, Dr. Fagan thinks it is possible that many heavy milking cows may be producing milk which they cannot supply with the necessary quantity of calcium, either through improper feeding with calcium-lacking foods, or else that part of the system which separates the calcium from the food is unable to keep pace with the speed with which the milk is secreted in the glands.

"In any case it is quite obvious that the discrepancy in the Calcium contents of milk would account for discrepancies in rearing results with chickens, where milk is fed as part of the diet.

"Now as to Vitamins. Here again great variations are found in the apparent vitamin contents of certain foods which are generally regarded as being rich in certain types of these necessary factors, and after very careful experiments the deduction has been arrived at that certain types of vitamins are nothing more than, one might say, bottled-up ultra violet rays, certain substances apparently having the property of holding and retaining them, but that if these sub-

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EDITORIAL.—Continued.

perch, or, if not so, the conditions when the birds are roosting are conducive to a predisposition to them, a greater effort would be made to secure proper ventilation of houses. Mr. Somerville's article on the subject has deservedly won the approval and appreciation of our readers, and we venture to hope that the importance of the subject is now so fully realised that it will be very fully discussed. It may suit a sensational press to blazon forth to the world the supposed decadence of British stock for its own purpose, but it is very distinctly injurious to the breeders of this country.

stances are heated, they lose their properties, but if they *are again exposed to ultra violet rays, they again replenish themselves with these same properties as before.*

"Further, it has been found that, if rats fed on food known to have all vitamin properties destroyed are kept in the dark, and fed on this food, they die, but put them in the sunlight or exposed to artificial ultra violet rays, they thrive on the food. And here is even a more startling fact. If the rats fed on this vitamin lacking diet are kept in the dark, but are changed into cages and litter which has been exposed to the violet rays, they will still live and flourish, clearly showing that the violet rays emanate from the material after exposure to their influence, and in some way or other replenish the animal with the necessary vital factors. Dr. Fagan says he believes that in the near future it will be possible to artificially vitamise foods, in which case one can well understand what a very important point this will be to poultry-keepers alone, especially those keeping birds intensively. Here is a chance for some enthusiastic poultry-keeper to experiment with using ultra violet rays upon his birds in winter instead of feeding sprouted oats, etc. But it certainly does give poultry-keepers food for thought, because one can purchase electric lamps at quite a moderate price, which, with the aid of a high frequency current emanates the ultra violet ray, and their price is by no means high."

C. S. ROSCOE.

EAST GRINSTEAD POULTRY ASSOCIATION.

A most interesting lecture was given by Miss Maddison at the East Grinstead Institute on Thursday, November 6th. The lecturer dealt first with the question of pedigree breeding for egg production, and the latter part of the lecture was devoted to the subject of handling—demonstration being given on a Rhode Island pullet from Miss Maddison's farm. Several questions were asked, and the meeting ended with a hearty vote of thanks to the lecturer. The Association is fortunate in having Miss Maddison as a member of the Committee, and the audience was a very appreciative one.

The next lecture will be given by Mr. Tom Newman on Poultry Feeding, on Thursday, November 27th, at 6.30, at the Institute, and any poultry-keepers in the district are invited to attend.

F. M. LAMBOURN, Hon. Sec.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

The Eighth Annual Six Months' Laying Competition is being held at Woodland Grange, Penwortham, under the management of Mr. J. Rainford, who reports all birds in good health; the Heavy Breeds are doing very well both in number and size of eggs, but Leghorns are very inconsistent in laying and egg size is below standard.

The following birds are moulting:—W.W. 17, 31, 32, R.I.R. 54, 56, W.L. 22, 24.

First Month's Eggs, October 9th to November 5th.

Figures given are eggs and points respectively.

Section 1. White Wyandottes.—1, J. R. Dawson, 79, 782; 2, H. Pindtr, 70, 698; 3, A. G. V. Ermen, 70, 684; 4, J. T. Finn, 68, 660; 5, J. Crompton, 68, 636; 6, G. L. Armstrong, 59, 590; 7, J. Hodgson, 58, 536; 8, Mrs. M Walker, 41, 406; 9, H. Holden and Sons, 36, 360.

Section 2. A.O.V. Heavy.—1, C. S. Humber (R.I.R.), 83, 830; 2, J. J. Rawlinson, 77, 762; 3, A. G. V. Ermen, 60, 596; 4, R. Moon and Son, 59, 516; 5, N. Swarbrick, 37, 366; 6, Mrs. M. Powell, 30, 288; 7, Mrs. W. Walker, 22, 220.

Section 3. White Leghorns.—1, R. Moon and Sons, 63, 562; 2, J. C. Barnes, 72, 558; 3, A. G. V. Ermen, 45, 434; 4, H. Holden and Sons, 40, 396; 5, E. Collier, 32, 272; 6, J. Fletcher, 8, 70.

E. COLLIER, Hon. Secretary.

On Breeding

By G. C. HESELTINE.

LINE-BREEDING III.—(Continued).

As it was explained in last week's article on this subject, accuracy of recording is of great importance in linebreeding. Accuracy of recording necessitates the use of trap-nests, the separating of eggs at hatching (i.e., in incubator cages or under separate hens), ringing the chicks or toe-punching (which seems safer), and ringing the stock as it matures. The writer finds that the seamless aluminium rings, such as are used with the approval of the Poultry Club by fanciers and members of breed clubs, are very satisfactory. They carry consecutive numbers and the year of ringing. As they are put on whilst the chicks are growing, and since they cannot be removed without damage, they are a permanent record.

For safety, rings should be cut in half or otherwise destroyed when a bird is killed; they will not then find their way back amongst unused rings, and so on to other birds' legs, thus leading to a duplication of numbers and a risk of confusion of pedigrees. By arrangement with the maker of the rings it is possible to ensure that the same numbers are not repeated amongst your stock for many years.

The distinguishing feature of line-breeding, as it was explained in the first of these articles on the subject, is that it is systematised. It is in-breeding according to a definite plan. It was shown that although in-breeding need not of itself cause degeneration and constitutional weakness, the great risk of such evils is entailed when two birds with the same weakness or tendency to weakness are mated together. The birds which you expect to be most nearly alike are the brothers and sisters from a close mating. They would be most nearly alike in both their good and their **bad** points. By mating brother and sister together you are therefore running a greater risk of bringing bad points together than by any other mating. Such matings are therefore dangerous and to be avoided.

Further, they are to be avoided because they are not likely to result in any advance in breeding—they lead nowhere. The mating of son to mother does result in progeny with the mother's influence predominating further than it did in the son to which she was mated. If the son is the progeny of two unrelated birds A (mother) and B (father), he is said to carry half his blood from his mother and half from his father, so that he may be described as "$\frac{1}{2}$A plus $\frac{1}{2}$B; this may also be written $\frac{1}{2}$(A plus B), such result being arrived at by adding A and B together and dividing by two. Now consider the mating of mother and son. The mother is A and the son is $\frac{1}{2}$A plus $\frac{1}{2}$ B. Add these two together and we get A plus $\frac{1}{2}$A plus $\frac{1}{2}$B; divide by two and we get ½A plus ¼A plus ¼B, or "¾A plus ¼B." Thus the result of mating mother to son is said to contain ¾ of the blood of the mother and ¼ of the blood of the original male. (This method of describing the progeny is purely arbitrary for the purpose of explaining the blood relationship and does not pretend to give any indication of the genetic factors carried by the progeny or of the appearance of the progeny.)

Now consider the case of a brother and sister mating from the same original parents A and B. The son is ½A plus ½B and the daughter is also ½A plus ½B. Add these together and we get A plus B, divide by two and we get ½A plus ½B; so that the **progeny** of the brother and sister mating is exactly the same as far as blood relationship with the original parents goes as the brother and sister from which they came. Thus we have made no advance. As will be seen later one of the chief objects in line-breeding is to form lines or strains in which the proportion of the blood of the original parents is as widely different as possible, so that after some time it is possible to breed birds with such a large proportion of the original female blood on the one hand and such a large proportion of the original male blood on the other hand, that a mating between these birds is almost equivalent to a mating of unrelated birds such as the two original parents, although the birds concerned are both bred from the common ancestors A and B.

It will be seen that since brother and sister matings are both useless and undesirable, and therefore to be avoided, the only alternative matings in the early stages of line-breeding must be those of one generation with another, e.g., son to mother, uncle to neice, granddaughter to grandfather, and so on.

It will be seen later, from a chart which will be given, that in the course of line-breeding several "lines" are formed. From the example given above (in which the female A mated to her son gave progeny which was ¾A) it is clear that if the father B were mated to one of his daughters (½A plus ½B), the resulting progeny would be ¼A plus ¾B. Thus the two matings would have given us the beginnings of two lines, the first of which contained a large preponderance of the original female blood (¾A) and the second a correspondingly large preponderance of the original male blood (¾B).

This is an essential part of any plan or system of line-breeding which may be adopted—namely, that several lines may be formed which will be relatively wide apart in blood relationship. This makes it possible to cross the lines with a similar (though, of course, proportionately smaller) effect to that obtained when different strains or breeds are crossed, and thus the danger of the in-breeding will be mitigated.

A plan of the matings of a line-breeding system, usually known as a line-breeding chart, will make the matter of separate lines more clear. A typical chart will be dealt with in the next article of this series. (Continued at Foot of Next Column.)

LUNCH IN HONOUR OF PROFESSOR WILLARD C. THOMPSON,

Director of the National Poultry Institute,
Harper Adams' Agricultural College.

A small party attended to meet Mr. and Mrs. Thompson and representatives of the press at the Ship Restaurant, Whitehall, on November 13th. The hosts were from the Ministry of Agriculture and the Poultry Advisory Board. Those present to welcome the guests were: Messrs. P. A. Francis, W. E. Walters, Edward Brown, P. H. Foulkes, S. Street-Porter, S. H. Lewer, A. H. Brownson, W. Hamnett, Clem Watson, C. A. House, and T. R. Robinson.

A message of welcome and apology for absence owing to previous engagements was reported by Mr. E. Brown from Mr. Tom Newman, Colonel Sandbach and Dr. Crowther.

Mr. E. Brown, in an eloquent address of welcome, recalled the fact that thirty years ago the first organised poultry class was instituted in this country at Reading, and among those early students were Miss Matthews (Essex), Messrs. W. Broomhead ("Poultry"), T. R. Robinson and R. Bourlay (South Africa). France had started at Gambais a year or so before that, and the Rhode Island College at Kingston, a year later. To-day a new era had dawned. A new institute was about to be started, but it was not the bricks and mortar that mattered, but the personality of the men and women who will be taking a leading part in the movement. We were fortunate in getting the help of our guests of to-day. The speaker went on to remind Professor Thompson that the influence of 1,000 years or more was in this country, but he felt sure he would soon catch the spirit of English life. A man's ideal work was in himself, and we all wished that Mr. Willard C. Thompson would remain Willard C. Thompson just himself, with Mrs. Thompson to take care of him. Although we as a nation were considered reserved, there was a warm heart and warm welcome awaiting our friends.

Mr. P. A. Francis referred to his recent visit to the States and how impressed he was with the work done by Mr. Thompson. He, Mr. Francis, reminded those present that the Ministry were deeply interested in the Institute, and were contributing 75 per cent. of the capital and upkeep. It was Mr. Foulkes pushing the poultry industry at the Harper Adams' College that made that place possible, now we hoped to reap the fruit.

Others that spoke the word of welcome were Mr. Hamnett, who referred to the visit in Lancashire of the American party in the spring; Mr. Brownson, who spoke on behalf of the National Poultry Council; Mr. Lewer, who gave a real hearty welcome from the press; Mr. Clem Watson, on behalf of the Fanciers; and Mr. T. R. Robinson, who felt sure that Mr. and Mrs. Thompson would soon feel as much at home in this country as they did in their own.

Mr. Willard Thompson, whose reply was welcomed with applause, said he felt the full weight of responsibility in taking up his new position. Poultry-keeping appealed to so many, it was of universal importance. A great change was taking place, the development now was in the direction of more vigour, larger developments and bigger business. The tendency was to work towards those economic ends. We wanted more definite knowledge and more efficient management. The friends he made last spring over here were an encouragement for him to come again. It was the interpretation of analytical and research work that was needed, their adaption in a practical form. He wanted to co-operate with all, and work with all, heart and soul. It was this real co-operation that he appreciated so much. He heartily thanked those who had met him and for the kindness and courtesy already extended to both himself and his wife.

Mrs. Thompson, with a few well-chosen remarks, closed the more formal part of the proceedings.

During the lunch we were much interested to see a beautiful specimen of a white gold Hamilton Watch, presented to Professor Thompson by his colleagues at New Brunswick on the eve of his departure to this country.

The writer will be pleased to elucidate any matter dealt with in these articles which may appear to the reader to be obscure or ambiguous, if enquiry is made in the usual way through the Editor.

(To be Continued.)

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

FURTHER MUTUAL HELP: **Eggs and Apples.**—In writing my notes I have, from time to time, referred to the various gains to the poultry-keeper if he plants apple trees in his fowl runs, especially to the younger man who naturally stands a better chance of reaping, later on, a fine harvest from the trees (which must eventually bear some good crops) as they get established and well developed—of course, assuming that care and attention has been given to them, and is continued.

That fruit trees will very materially benefit from the poultry, and at practically no additional cultural expense, is borne out by the testimony of many; but for another reason I should like to give an extract from an article I came across recently, because it not only shows the mutual gains from this combined farming, but proves how the large commercial fruit growers indirectly will help poultry-keepers, for it will automatically bring a demand for sitting eggs and birds, and likewise the need of more poultrymen's services on the large fruit farms.

Just as the general farmer realises the need of special hands for special work, so the demand for trained poultry-keepers will come along as more and more birds are kept on big fruit farms.

The extract mentioned is from a report of a visit of fruit growers and market gardeners to Messrs. Nash and Austin's plantations of 100 acres. After showing various interesting features and the advantages to be had from not planting too many varieties (one half of the orchards being only Bramley's Seedling apple), Mr. Nash drew special attention to the remarkably vigorous trees and healthy foliage, also the freedom of the trees from insect pests, and he said he had "very definite ideas as to the great value of poultry in fruit culture, and that for three reasons :—

(1) They picked up any caterpillars, etc.

(2) They manured the ground.

(3) They kept the grass down."

He had already 2,500 head of poultry divided up into half acre pens, and was gradually extending this system until there would be poultry over the whole plantation. This was such an important practical point that the party went out to see the parts which had not previously carried poultry, and the difference in the health and growth of the trees, as well as the fruit, was marked indeed.

Does not this testimony further emphasise the fact that poultry-keepers and fruit growers can help each other, and also that the poultry-keeper can, in many cases, help himself to an additional income by planting fruit trees in his fields? I do not say that every poultry farm is suited for the combination, but there are many where it would work exceedingly well.

That the demand for fruit is great is shown by the increase in the figures of apples imported into this country and surely the home market should hold its own if good stuff is supplied, in flavour, condition and appearance. There is an indirect import duty on the apple in the form of freight alone, which is thus a help (or shall I say "protection"?) to encourage the home producer.

At the Fourth Imperial Fruit Show at Bingley Hall, Birmingham, I read that our King gave his support to this home industry, for, as an exhibitor, he showed dishes of eighty varieties of apples and forty of pears, from the Windsor gardens, which created much interest.

I think Mr. Newman's article on "Eat More Eggs" is to the point, for the "Eat More Apples" slogan is often thrust before me, and, as I have been showing, the egg and the apple should be good pals to one another, and both industries can equally gain by the special advertising, and this to their mutual advantage.

The PLANTING season is again upon us, and in many places the work is in full swing, November and December being, I consider, the best months; so just let me add to my previous tips, that it is important to see that the ground is well cleared of weeds, in particular couch grass, bindweed, and other similar kinds, which do not rot when dug in, but multiply and become a great nuisance. To try and get rid of these after the fruit trees are planted is a hopeless job and great damage to the roots is likely to result.

TESTIMONIALS.

Bellrock, Prestwick,
Ayrshire.
28th July, 1924.

'Dear Sir,—I should like to add, in closing, my appreciation of 'Eggs.' My hatching results with a Gloucester Incubator have been brought from 65 per cent. to over 90 per cent. of eggs put in during the last few seasons, as a direct result of information contained in your valuable paper."

Thanking you, I remain,
Yours faithfully,
(Signed) JOHN L. BURGOYNE.

Ifield Valley Poultry Farm,
Shorne, near Gravesend, Kent.

"Dear Sir,—I have pleasure in enclosing cheque for double my last year's subscription, and in doing so consider it one of the best investments I can make. Further, as my little farm grows, I hope to increase my subscription in proportion.

"The Association is doing splendid work, and the fair, open-minded criticism expressed with, at all times, such a good-natured spirit in 'Eggs,' makes one proud to be associated with such an organisation. To you, Mr. Secretary, is due the major portion of the qudos, and may you continue for many years to carry on this excellent work, is the wish of

Yours sincerely,
F. CLAUDE BUTCHER (Capt.).

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. **Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

"Ipeka" (Dublin). The analysis of the fish meal is very good, but it is very smelly. The meat and bone meal has an excellent analysis, and if this were cheaper than the fish meal I should recommend it. The bone meal is not very good. You mention a formula of which you ask if I approve, but you did not enclose it, so I cannot express an opinion. If the quantities were indefinite, I do not think that I should approve.

L. J. (Blaydon-on-Tyne). We will deal first with the samples. Of the two of fish meal I prefer No. 1; the sample of maize meal is quite a good one. The boxings are rather coarse, and contain too much ground over bran. The clover meal is very fibrous, and the percentage of leaf not very high; it is not a good sample. Your bran, too, is only very moderate. The ground oats is a nice sample. Now, with reference to the condition of your birds. The possibility is that the change of food had been a very complete one, and this would account for the blood in the droppings, and the considerable digestive disturbance. I think you would be wise to alter your feeding. You are using too much bran in the wet mash, and I think it would be much better if you were to bring the boxings up to six parts, and omit the bran altogether, and, unless you can get a better sample of clover meal, omit that, too. If the parts are by measure, reduce the fish meal to half part. As you will be omitting the bran, I would not now add the flour to the boxings. In conjunction with the ground oats and maize meal, they will be good enough. At the same time I would omit the oats from the grain feed, and make it now of equal parts kibbled maize and wheat. Further, it would be better if you gave this as a heavy feed at night, and only just a small scratch feed in the morning, to promote exercise. Thanks for your appreciation of "Eggs." I am pleased you have found it helpful.

G. R. (Rotherham). I do not think this sample of soya bean meal is at all good, and would advise you not to use it. I cannot say definitely, but the smell inclines me to believe that it would be likely to injure your birds.

M. I. (Justicetown). Your cockerels will not need a different formula from the pullets, except that I would not give them so much maize. As the grain feed give principally good plump oats and wheat. I do not think it would be advisable to keep on the 200 hens for another season after you have bred from them this spring. They are not likely to prove profitable for another year. There would be no objection to your breeding from matured pullets in the first year. Why not hatch a few in January for that purpose? You would find them profitable for egg production from the end of July onwards. Yes, it would mean breeding stock as well as pullets. It is not advisable to run pullets with old hens even during the laying season.

W. B. (Sheffield). I am afraid that I cannot give you any further information as to the extermination of red mite. We have had articles on this subject more than once in this journal. It is very necessary, when treating the houses, that you should get the creosote or paraffin, whichever you are using, well into any cracks or crevices. It is far better to use a spray and remove all internal fittings, so that none of the mite may escape. It is always advisable to repeat spraying within a week, and a third time may be necessary, as either the mites or their eggs may escape the first onslaught. Crude paraffin I have always used and found as successful as anything, but some people prefer creosote. You must remember that the mites are disseminated by the live birds who carry them. More than this I cannot help you.

W. E. T. (Lower Beeding). If you have skim milk you are lucky indeed, for there is nothing which will be so helpful to your stock, whether growing or layers; but your best plan would be to mix the mash with this to a crumbly moist condition, and, in addition, you might give them some to drink if you have sufficient. There is no need to add other ingredients to the mash. It should be quite satisfactory. Yes, this turning of the eggs four times daily applies to those with self-turning trays. Of course, you do not want to turn every individual egg. Particulars of the S.P.B.A. will be sent you by post.

N. D. (Bletchworth) It is most important that eggs intended for incubation should be properly stored. You ask that very old question as to how long they may be kept. That does not arise. Every day that an egg is kept after being laid it deteriorates, and the chances of hatching a healthy and vigorous chick, or even a chick at all, becomes smaller. The shell, as has repeatedly been explained, is porous, and this permits the intake of oxygen and the escape of the carbon dioxide exhaled by the growing embryo. The membranes are kept in a moist state by the moisture within the egg. If there is much evaporation from the egg there would not be sufficient moisture within it to keep the membranes moist. When they are in a moist condition they permit the free intake and escape of the gases. When dry they become impermeable to these gases, so that the growing embryo does not develop for lack of oxygen, and very frequently the chick is suffocated in its shell because the carbon dioxide cannot escape. That is why thin-shelled and stale eggs hatch so badly, because there has been too much evaporation to keep these membranes in the condition they should be for normal hatching. The eggs should be stored in bran, or even wrapped in newspaper, and kept in a temperature as near as possible to 50 degrees. We have not only to look at it from the point of hatchability, but from that of the health and vigour of the chick.

H. W. (Lancs.). With regard to the use of sulphate of iron in your soft food. The best plan would be to dissolve two ounces in a quart of water, and then add eight teaspoonfuls of the solution to every gallon of water, and mix your soft food with this. If you can buy dried bread fairly cheaply, you could use it in the same proportion in the soft food as you would biscuit meal, maize meal or ground oats.

Glebe Farm (Belstead). I think you have only sent me one-half of your letter, as there is no signature. Your feeding is correct, but I think you should handle your birds and examine them carefully. As they are one or two year old hens, it is very possible that they have got into an over-fat condition after the moult. You are feeding very heavily at the present time, although your mixture is quite all right. I would suggest that you give them more scratching exercise. Often when the abdomen is soft and fleshy there is internal fat. It would be wise, I think, to discontinue the wet mash feeding for the present, and see what effect that will have on them, but you must judge entirely by their condition.

Withysham,
Merstham, Surrey.
10th November, 1924.

"Dear Mr. Newman,—My Wyandotte record for the past three years—flock of 30 to 40—averaged 219, 189, 202, and this I have done by reading your valuable paper and advice.

Yours faithfully,
(Signed) E. PASSMORE.

Turkeys.

By **BERNARD REDDAWAY, M.S.P.B.A.**

THE LAST STAGES OF REARING.

When the chicken are six or seven weeks old they will begin to "shoot the red." While they are doing this they must be given every care, as, during this period of their lives, they are very delicate.

When they have passed through this stage of their growth, they will begin to thrive and grow very fast. To support them properly while they are growing so quickly, they will require a large amount of food, and if they are not given enough, they will become, not only thin, but stunted as well.

The soft food must be given in the morning, and the same mash which they have been having before may be continued. A little larger proportion of meat or meat meal could be given with advantage.

In the evening larger grains should be given than before. Wheat, oats, buckwheat, and, perhaps, a very little barley, are suitable for them at this period of their lives. When they are seven weeks old they should be put on to three meals a day, two of mash and one of grain. At eight weeks they should be reduced to two meals a day, one soft food and one of hard food.

The birds must be allowed to live their free and normal lives until a month before it is time for them to be killed.

The birds from the early hatches will quite likely be ready for market some time before Christmas, and if prices are reasonably good, it is not advisable to keep them any longer than is necessary, as the cost of feeding them for any extra time very quickly eats up the possible profit which a rise in prices would give.

The best selected birds should be kept for further stock, and on no account must they be fattened or closely confined, or their value as breeders will be greatly reduced. These birds should be fed on the same foods that they have previously been having.

The fattening pen should have a fair-sized run, of which the grass must be fresh when the birds first go on to it. The house should be dry and spacious, and each bird should be allowed ample perching room.

The mash fed to them should consist mainly of Sussex ground oats and other fattening foods of good quality, and should be mixed with milk, either fresh or sour, or buttermilk, if possible. If water is used for mixing, it may be advisable to add a little meat meal to their ration; but milk is best, as it is at once nutritious and easily assimilated. In the evening the birds should have the same feed of grain as they have been accustomed to receive.

No food must be given to them for twenty-four hours before they are required for killing. Dislocation of the neck is the usual method of killing them; but if the killer wishes them to bleed, their throats must be cut directly they are dead. Before being sent to market

(Continued at Foot of Previous Column.)

TURKEYS.—Continued.

they need to be plucked all over; but the feathers should not be removed from the neck and head. It is advisable and much easier to pluck them while they are still warm. Turkeys are often sold alive; if this is done, these instructions are unnecessary.

THE END.

Bees and Poultry-keeping

By E. W. D. MADOC.

ENEMIES OF BEES.

The enemies of bees are few in numbers, and are easily controllable when the right measures are taken. Perhaps the most important is the wax moth. There are two species of this moth, but their habits and life histories are very similar. Of these two, Galleria mellonella, or the larger wax moth, is the most important. The moth itself is an inconspicuous, quick moving, grey moth about three-quarters of an inch long, and is most frequently seen among the quilts covering the frames in the hive. She lays her eggs in any suitable crevices near the combs. The larvae when first hatched are white and very small, and immediately burrow into the combs, spending the whole larval period in tunnelling through the mid rib of the comb, lining the cavities so made with silk similar to that of which the cocoons are formed. They feed on the wax of which the comb is constructed and on pollen stored in them. At the end of from four to six weeks they form cocoons either in the combs or on the walls of the hive, and in about two weeks' time the adult moth emerges.

Wax moths rarely damage combs in a hive containing a strong stock of bees; more particularly if the bees are Italians, and have some Italian blood in them. Weak stocks, not covering all their combs, are sometimes affected, and it is generally empty combs unprotected by bees at all that are the worst sufferers.

In dealing with this pest, prevention is better than cure, and all combs not on the hives should be carefully stored in such a way that the wax moth cannot gain access to them. If the "supers" are not moth proof, when carefully stacked in piles with a covering over the top and under the bottom of each pile, and it is impossible to make the room in which they are stored moth proof, it is generally best to wrap each super in newspaper. If, however, this has not been seen to and the larvae are found at work on the combs, immediate treatment should be given or the combs will be completely destroyed. If the combs are found in this state during the summer, the best thing to do is to place the affected combs on a strong colony of bees who will make short work of clearing out the larvae and their silk on tunnels, but this method can only be used during the active working season. At any other time the combs should be stacked in an air-tight pile, and a saucer containing carbon disulphide placed over the frames. This liquid will evaporate, and the gas so formed, being heavier than air, will sink to the bottom of the pile of supers, and if properly done all eggs and larvae will be destroyed. In using carbon disulphide great care must be taken to keep away any exposed flame, as this gas is highly inflammable, but with due precautions in this respect the treatment is safe and highly effective.

(Continued at Foot of Next Column.)

Correspondence.

CENTRALISED POULTRY SERVICE SYSTEM.

To the Editor of "Eggs."

Dear Sir,—Mr. Morton Nance invites remarks on his scheme for a "Centralised Poultry Service System."

May I say, with all respect, that it would be difficult to cram more errors of design into a small space than does Mr. Nance, and suggest for his consideration the following:—

(1) Why a radial system of management in preference to a rectilineal?

(2) Does not the former put some parts of the edifice in total shadow?

(3) How are alternative runs provided?

(4) Can he use his houses so that while providing (a) the maximum sunshine permissible by the site, also (b) allows of the houses affording partial shelter from hot sun, and also (c) from winds?

His plan appears to provide only for adults.

(5) If he is going to rear, where, in such a scheme, would he place (a) incubators, (b) brooders and hatching and rearing grounds, (c) pullets up to, say, six months, and (d) cockerels to four months?

Finally, why does he provide

(6) Labour-making devices, such as a loft and food bins?

A loft entails raising and lowering of loads, prevents effective supervision from vermin, rains down dust, food and dirt upon the birds on floor chamber.

Corn bins are an extravagance, and prevent the thorough turnover of food and increased labour. Food is received in the raw and then mixed for transport to the chickens. If, after mixing it, first into bins, it has to be ladled out to other receptacles en route to birds, whereas if put into sacks, and specially known sizes, then it is immediately ready for transport, whithersoever may be necessary. Moreover, an effective turnover is obtained, and if stored on a grid iron of wood the food is practically safe from rats; in any case the latter can be seen, but not in a loft.

(7) Then, what with the bins, the radial arrangement of the housing, the complete system of lighting, would not the houses be unnecessarily costly to erect?

Yours truly,
C. HESKETH (Major).

"CENTRALISED POULTRY SERVICE."

To the Editor of "Eggs."

Dear Sir,—The idea of Mr. Morton Nance of a "Centralised Poultry Service" is excellent, but is it practicable?

As planned, some of the poultry sections would get practically no sun (if there ever is any), whilst others would get it nearly all day.

Personally I do not like the mash hopper. I have never seen one **in use** which does not clog, and I prefer the open box type.

Would it not be better to water the birds from outside and so keep the food stone dry? If watered as he suggests the troughs would have to be taken outside to empty and clean.

The trap-nest arrangement is very good if he uses fronts which enable him to set them from the food store. It saves time and also a lot of walking about in the straw, often with wet and muddy boots.

I am afraid he will find the extension too costly for the extra amount of housing it gives.

I also think he will find the elevation of Sketch VII. too expensive. Why not put in skylights if ventilation is not required in the roof, but **do not make a skylight to open,** they invariably leak.

The greatest objection to centralising is infection in case of disease.

I consider the intensive system requires thorough investigation, and am surprised Mr. Toovey should be content to say "We are beaten" without a fight, and a good one, too.

If this system could be run successfully, it would mean we could keep far more fowls on less land, and the extra labour would be countered by the time saved in going from pen to pen, opening gates, etc.

Apologising for the length of this letter.

Yours faithfully,
P. BOWLER.

Sunnybank Poultry Farm,
Saltburn-by-Sea, Yorks.
11th November, 1924.

"Dear Sir,—I appreciate 'Eggs' tremendously—there is something good on every page, and it is really the **only** Poultry Paper worth reading. I have found the other papers a sheer waste of time."

Yours faithfully,
(Signed) (Miss) E. ARMSTRONG.

Pioneer Poultry Farm,
Kalaw, Fedtd. Shan. States, Burma.
11th June, 1924.

"Dear Sir,—Your excellent paper is worth all the other poultry papers put together. I glance through the others and read yours from beginning to end for fear I shall miss something useful."

Yours faithfully,
(Signed) DOUGLAS J. ANSELL.

Re VENTILATION.

To the Editor of "Eggs."

Dear Mr. Newman,—There seems to be some grave misunderstanding as to the nature or principle of the scheme for ventilating poultry houses and brooders as outlined in my recent article, and I would be glad to be allowed to eradicate this definitely.

My principle is original (I believe) as applied to this particular purpose, inasmuch as it is based on **Suction** as distinct from pressure from the outside atmosphere.

Let it be clearly understood—since this is the all-important feature—that with closed doors, draught, upward, downward or across is practically **an absolute impossibility.**

In the case of houses dependent on ventilation by means of open apertures, such as windows, flaps, etc., on front, sides, or back of the walls, air blows in with a force, or intensity, according to the outside atmospheric conditions **and** from the particular method of vent from the house itself.

Now, then, if a person goes into a room where an open window is causing too much draught they close it. A hen cannot do this! If, on a very still day, a room is found to be stuffy a window is opened. A hen cannot do this!

On the suction principle the matter is very different. Owing to the rising body of hot air coming from the **birds themselves** suction is caused at floor level. In other words, nature abhors a vacuum and the hot air must be replaced. This fresh air is **drawn** in through apertures of particular design, and the design is such that under no conditions of violent atmospheric disturbance can it be blown in. Thus the supply of air is automatic—or nearly so—with the actual demand for it from inside the house itself.

And herein lies the advantage this method has over the old form. On a still, heavy, dank day your air is still supplied as required owing to the law of physics operating inside. I hope this is clear.

With regard to the Apex house itself.

In order to assist in the lifting of the foul air in the house the injector principle is applied at the top, only in this instance it acts as an **ejector,** and, of course, would only operate when there was some wind pressure outside.

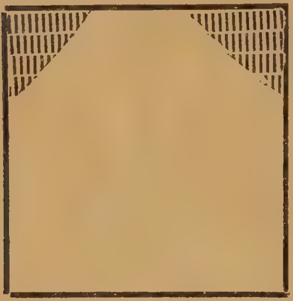
Someone might say, "What about your still, dank day?" My reply is that you are no better off with the old form of house ventilation, whereas in the new you still have the suction effect of ascending hot air; and especially is this an advantage in very hot weather.

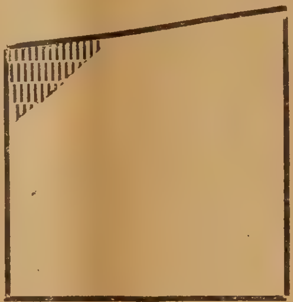
Just one more contention. It seems to me incontrovertible that open windows or apertures at the top of the walls of a house tend to "blanket" the ascending front air by reason of the greater density of the inflowing cold air.

Here may I put it to Mr. Bowding Powell that in his instance of exchanges the conditions are not quite the same. There you have a body of people moving about and thereby causing swirls, eddies, and inside atmospheric disturbances, creating a mixture of foul and fresh air.

When designing the house I gave most consideration to the stationary conditions of the birds at night. A still stagnant atmosphere in a house at night is the very devil, and every effort should be made to counteract it.

Is it not very obvious that the cubical content of space contained in the angles between the roof and sides of a square house is of no use to the birds? The shaded parts of the appended diagrams show that it is here we possibly get pockets and blankets of stagnant, foul air.





So apart from the matter of ventilation, why waste money on building something we do not want?

As a final word in favour of the system. When you have to **push** fresh air into a house by means of side or front ventilators situated at all levels you do not get true ventilation in the strictly scientific sense of the word, but simply a system of swirls and eddies and diffusion, at the same time incurring the risk of draught and a continual variation of temperature. Whereas if you can create a steady and continuous **pull** at the apex it is conceivable that the intake of fresh air should be almost automatic in its regulation.

With regard to the cost of the Apex house. I make the difference rather more than "Enquirer"; roughly, it should be 25 per cent. less than a square house. I built my first house single-handed. It measures 21 feet by 12 feet, and accommodates 90 White Leghorns. It is, of course, a fairly crude structure, but there was about that difference in cost of construction between it and a square house of similar capacity.

May I, in answer to many applications for "Apex" houses, say that I am not a manufacturer of poultry appliances except for my own immediate personal needs, or that I cannot either get or afford to obtain from outside sources. I am really a very quiet person, who only gets agitated when he sees the inconsistencies in the shape of unsuitable or insufficiently proned apparatus that is supplied to busy poultrymen who have no time to experiment for themselves. And I appreciate the kind interest with which my recent suggestions have been received, the more so as it tends to show a recognition of the fact that the poultry industry **cannot** be a haphazard business if it is to be successful. But there has been such a demand to me personally to know if the "Apex" house can be purchased that I have been persuaded to supply working drawings to a firm of manufacturers, and this has involved a certain amount of remodelling of the house, especially in the matter of the air intakes and ejector vent as these are the all important features, and on them is dependent the success or otherwise of the principles. I therefore crave the patience of those desirous of building their own houses till these details are settled, when I hope in the near future to be able to supply them.

The houses will be supplied in "bays" with two ends ready for the simple operation of bolting together, and where extensions are required one end is removed and another "bay" from your own stock, or purchased singly, is added and the end replaced. Vice versa a house may be reduced in size. It will be quite possible for the average man to do it single-handed.

I have agreed to handing over the rights for the manufacture of these houses only on condition that they are up to my standard of efficiency and are passed by me.

Apologising for taking up so much of your valuable space. I am,

Yours faithfully,

C. WINTHROPE SOMERVILLE.

To the Editor of "Eggs."

Sir,—

The increased price of foodstuffs now prevailing, and likely to prevail for some time to come, is a strong incentive to poultry-keepers, who hope to make money out of eggs, to seriously consider the possibilities of economy.

The profits of a farm, given good management, depend largely, whether the farm be large or small, on two main factors—on maintaining the prolificacy of the flock, and in keeping the largest number of profit-producing birds that the available labour can efficiently deal with.

In this country, as in the United States of America, the breed kept by the majority of egg farmers is the White Leghorn. To maintain the prolificacy of a flock of White Leghorns, year in, year out, replacements must be hatched from hens mated to males bred from highly fecund dams, and preferably with a number of generations of highly fecund ancestors. For certainty of selection, trap-nesting is necessary. Selection by handling is probably effective in rejecting the thoroughly bad male, but cannot be trusted very much farther than this. If the egg-farmer trap-nests even part only of his flock he must keep fewer birds than he could without trap-nesting, or employ more labour, and so reduce his profit. If he does not trap-nest, he must either buy in males at considerable cost, if they are to be worth breeding with, or run the risk of depreciating prolificacy.

The number of birds that a man can efficiently look after all the year round is governed by what he can manage at the time of greatest pressure, i.e., in the hatching season, when on to the care of the adult stock is added two extra and exacting tasks, hatching and rearing.

These considerations, added to the fact that if a man hatches from his own stock he has to maintain male birds, eating much and producing nothing, have led an increasing number of farmers in the United States to replenish their stocks by buying day-old chicks from reputable hatcheries, which make a speciality of supplying high-grade stock. They find it pays them better to buy good "baby chicks" than to mate and hatch for themselves.

Would it pay egg-farmers in this country to follow the American example? On the general principle that specialisation always results in greater efficiency, the answer seems to me to be yes, but I have no definite figures or any record of experience to adduce. Can any reader supply data to support or confute the conclusion from general principles and assist in solving a problem of importance to a large section of the industry?

It is all a question of comparative costs and comparative profits under the two systems. The main economics, direct and indirect, effected by not hatching can be stated. They are:—

(1) Saving of the capital cost of incubators and incubator building, and the annual repairs and depreciation thereon.
(2) Utilisation of the incubator building, or the space it occupies for other purposes.
(3) Saving of the loss made by eggs being set instead of sold.
(4) Saving of the labour and other costs of hatching, and more profitable use of the labour.
(5) Saving of the labour, food and housing costs on the cockerels reared for mating.
(6) Utilisation of that labour, food and housing for profit-producing birds.
(7) Saving of the cost of trap-nests and of the labour connected with their use, which labour can be put to more profitable use. If trap-nests are not used, the risk of serious loss from using unsuitable males is minimised, or the cost of cockerels bought in is saved.

Lastly, there are the various economics and advantages derived from running a flock as a laying flock only, instead of partly as a laying flock and partly as breeders. The system of management for the production of the largest number of eggs at the most profitable time is not that most suitable for the maintenance of a sound flock of breeders. If the same flock is run as egg-producers and breeding stock, either egg production or breeding value must suffer.

The essential thing to make buying day-olds more profitable than hatching is to buy day-olds of a good strain and sired by males from dams of known prolificacy. There are many breeders specialising in breeding high-grade utility stock who can supply these, but they cannot be produced at the prices some day-olds are offered at. On this point I can write with knowledge and quite disinterestedly, so far as White Leghorns are concerned, for I do not breed them. Pedigree breeding is an expensive business, and it is impossible for a genuine pedigree breeder, who—to instance one expense only—probably trap-nests hundreds of pullets to find a score of flyers from which to breed cockerels, to remain in business and sell at the prices advertised by some people. Pedigree breeding and heavy culling is absolutely necessary to maintain the prolificacy of a flock, and it is far cheaper in the end to pay a man with a good reputation to keep up a fair price than to buy chicks merely because they are cheap. To pay an extra sixpence or shilling, a chick may seem a lot, especially when multiplied by hundreds, but it amounts to the price of a very few eggs per bird, and there is a difference of 50 eggs and more between the production of a good layer and a poor layer.

To come back to the main point after this digression. The question will be asked: "How can it be cheaper for a man to pay another breeder a profit than to breed himself?" The answer is that the specialist breeder can produce good stock with certainty cheaper than the farmer can produce equally good stock with equal certainty, and the savings and the extra profit the farmer can make by organising his business as an egg farm *only* more than suffice to pay the breeder's profit.

I am not an egg farmer, but a breeder, and so cannot write with practical knowledge of the egg-farming business, but for the reasons I have tried to set out, if I had an egg farm, I would not breed a bird.

M. W. SLADE.

Mallard's Court, Stokenchurch, Bucks.

ANSWERS TO QUERIES—Continued.

G. R. (Grantham). I really cannot tell you why it is the hens like putty any more than I can tell you what there is in a certain national dish which the Natives like and which other people take as medicine with as cheerful an expression as they can. We are sending a copy of "Eggs" to the address you give, and are sending you particulars regarding the S.P.B.A. by post.

A. M. A. (Henley-on-Thames). It appears to me that your birds require a little more heavily feeding, and you would be much wiser if you gave a heavier feed of grain at night. For a bird to be on the perch with one ounce of grain from 4.30 to 7.30 the next morning is not conducive to heavy egg production. Further, I do not consider oats are the right grain for this purpose. At this time of the year it would be far better to give kibbled maize. As to the condiment, I know nothing about it. Condiments do not help egg production. You will never find them in the yolk of the egg.

F. S. (Badminton). With reference to your proposed cross R.I. Reds with Black Leghorn cockerels. The birds would come mainly black with perhaps bronze feathers in the neck hackles. They should prove very good layers. The eggs would vary in colour, but would be mainly tinted, although a few of them would be white. As to hatching, the last week in March or the first week in April would be in good time for them to come on to lay in October.

W. M .(Wigan). The sample of thirds at 12s. 6d. cwt. is a very good one. The bran is also very fair. The ground oats are not "Sussex" ground, and none too good a sample. The biscuit meal is fairly good. You could make your mash as follows:—One part bran, one alfalfa meal or clover meal (I hope this latter is a good sample, but I am very doubtful, although you have not sent me a sample), four thirds, one S.G.O., one biscuit meal, and half dried yeast and half meat and bone meal.

S. W. H. S. (Carnarvonshire). The sample of fish meal you send is a good one, but surely you are mistaken in pricing it at 35s. cwt.? Twenty-five would be more correct. The meat and bone meal is very moderate, but at 28s. ridiculously dear. You should get quite as good at 20s. The finer one I do not like at all, and the price is very ridiculous. The ground oats are a good sample, and fair value for the money. The bran is only just fair. The Indian meal is very good indeed, but the thirds are only moderate, containing rather an excess of bran. With regard to your January-hatched pullets not laying. You say they are not in an over-fat condition. The question is: Are they in under-condition, as it is a very extraordinary thing that pullets of that age should not be laying? Presumably they laid in the late summer, and have moulted, possibly only a partial neck moult? With regard to the disinfection of your brooder. The best way would be to spray this out with white-wash, to which carbolic acid has been added.

H. and G. (Essex). The maize germ meal is a satisfactory sample, except that it is a little smelly, and appears to be a little rancid. I should prefer to use maize meal. The ground oats are just moderate, and they are not "Sussex" ground, but would possibly answer your purpose. The maize meal is a very good sample. The meat meal is rather coarse, and only a very moderate sample. I do not consider it good value at the price. No. 1 is only just fair; better value than No. 2, but not a particularly good sample.

POST-MORTEMS.

H. P. The post-mortem examination of the Black Leghorn cock showed the cause to be uraemic poisoning consequent on acute inflammation of the kidneys. The drooping of the head was due to the intoxication of the brain by the retained waste products.

S. S. We are always glad to get a history of cases sent for post-mortem examination, as they are often helpful, but in this case there was no shadow of a doubt as to the cause of death, which was GOUT. The heart, pleurae, and liver were covered with urates of sodium, giving them the appearance of having been dusted with flour. Pericarditis or inflammation of the heart sac was the actual cause of death. Preventive treatment consists in fasting for at least twenty-four hours, and the daily administration of fifteen grains of sulphate of sodium in the morning feed. A ration with less proteins is advised.

A. A. We find the pullet was affected with ovarian disease, the ovulation being arrested and the yolks dying on the stalk, as it is called. We strongly suspect the bacillus pullorum of white scour as the cause, and wonder if she is a bird that recovered from that disease in a mild form as a chick. Do you happen to know if she was associated with chicks that died of scour? If the above is the cause, we are unable to recommend any preventive treatment.

IMPORTANT.

We wish to draw our readers' attention to the fact that on 29th November onwards all birds for post-mortem examination should be sent to Major E. J. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Major Saunders, who has had a very distinguished career, has a special knowledge of birds, being associated with the Canadian research work into Avian Diseases, while holding the position of Professor of Surgery at the Toronto University. He has had a world-wide experience, and has worked for some months with Capt. Leeney, M.R.C.V.S., whose articles and post-mortem work have proved of such value to our readers, and who is now taking a temporary rest.

MEMBERSHIP OF THE S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000-hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Horsham, Sussex.

The Financial Year began on 1st September.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

A 5 lb. LEGHORN.

I take the following from the "American Poultry Journal":—

> "When the Leghorn breeders were talking over the matter of the standard weight for this breed, Professor Arthur Smith remarked that if they would breed 5 lb. Leghorn hens they would overcome the market discrimination against small poultry, and, with the recognised egg-laying proclivities of their breed, they would have the poultry world at their heels.
>
> Professor Smith has produced a 5 lb. Leghorn. She is D.45, and has laid 260 eggs in 365 days. She is not an imported hen, but from a strain which has been crossed with noted laying and exhibition tests."

Although we shall all agree that there is a tendency to get our White Leghorns too small, we may yet make a bigger mistake if we work for the five pound bird. We are told that at Minnesota University their object is to develop a strain of fowls of sufficient size and weight to be in fair demand as market fowls. The question as to whether this is an economical proposition has yet to be solved. We begin with the fact that with the Leghorn heavy egg production is the primary object. It is, of course, a very mistaken idea to think that size is against heavy egg production—this is pretty constantly taught. It is wrong, as we have many records of birds which are above the average size of their breed, which will tell us otherwise; but heavy egg production is against size, for the reasons which have been so frequently given. Nevertheless, the breeder can maintain size to a great extent; the only thing to prevent his doing so is early maturity. It is, however, one thing to get an individual weighing 5 lbs., and another to get a flock to do so; and once having got it, it is not an easy thing to maintain, especially if breeding for high fecundity. Lack of size in many cases means lack of stamina. It is usually due to early maturity—production at the expense of development. If it had been possible to have introduced a minimum weight in our laying tests, as was done in Australia with such good results, I have no doubt that it would have led to a great improvement in the stamina of our bred-to-lay breeds.

A STANDARD OF EGG PRODUCTION.

What is the standard of egg production on our commercial egg farms for the six winter months—from October 1st to end of March? In New Jersey the standard aimed at is 80 eggs per bird, from November 1st to end of April. In the last report it was not attained, the average for 69.119 pullets on 244 egg farms being 71.9, and this after there had been some culling. One has, of course, to allow for the fact that these records were collected from a large number of farms, and the individuality of the farmer has always to be taken into consideration, but one can hardly think that 80 eggs for the period named is unattainable. If we could only cull a little more drastically before the pullets were finally placed in their winter quarters. On so many farms which I visit one sees such a number of immature or badly developed pullets, which must be kept for weeks before they will contribute to the egg basket, and they can never be profitable.

ARTIFICIAL LIGHTING.

I have received the following letter from Mr. Bunt:—

> "What do you think of this idea? For the past three years I have practised feeding my little flock at 5 p.m. daily, and at present have just started to feed at the same hour by lamp, which is taken away at 5.30, which just gives them sufficient time to consume all that is necessary. Do you consider that this short period is really harmful to the birds or beneficial? The only difference being that during these winter evenings they are fed by artificial light instead of the natural light. Before practising this I used to visit my house at 10 p.m., and on feeling their crops would find very little in them. In some cases I noticed that my best layers were always out worming, while the others were having their last feed, and consequently when they returned from the runs they could not see to pick up the grain, the result being that at 10 p.m. their crops were empty, but I find that by giving the lamp for half an hour only they all get the same chance to feed."

I think Mr. Bunt's idea is excellent. After all, the great object of artificial lighting is to enable the birds to go through the long winter nights, and to consume a larger quantity of food, which would enable them to produce more eggs during the short winter months, when the total consumption is not adequate for their requirements.

I cannot see what is to be gained by allowing hours of lighting, such as are practised on some of the American farms. There is but one object in view, and when that is achieved an hour's lighting would be equivalent to three or four hours. Further, the nervous system of the birds would not be so likely to be upset.

APPLICANTS FOR MEMBERSHIP.

Nichol, M., Wiltonbank, Hawick, N.B.
Templeton, J. G., Belvidere, Galston.
Turner, T., 185, Park Road, Adlington, Lancs.
Antram, E. A., "Heaselands" Bungalow, Barham, near Canterbury.
Andrew, A., The Hollins, Crowden, Hadfield, near Manchester.
McGriffie, Mrs. A. J., Woolton Hall, Woolton, Liverpool.
Booth, S. A., 5, Hartley Village, Aintree, Liverpool.
Hodge, J. H., Red Lion Dairy, Maghull, near Liverpool.
Powell, Oliver, Uckfield Road, near Lewes, Sussex.
Walsh, William, 11, Miller Street, Summerseat, near Manchester.
Day, Ewart, The Staplers Poultry Farm, near Newport, Isle of Wight.
Rickwell, J. W., Willingham Nurseries, Pollokshaws West, Glasgow.
Steeples, R. S., 21, Silver Street, Platts Common, Barnsley.
Betts, H. F., Enysham House, 4, Factory Street, Banbury, Oxon.
Whiting, W. G., High Street, Cheshunt, Herts.

(Continued at Foot of Column on Next Page).

The Danger of the Foreign Yolk.

By F. W. WAIT.

The nutritive value of the fresh egg is equally recognised by the scientist, the invalid, and the working man. Nothing is more nauseous than a bad one.

It is a regretable fact that millions of eggs from the slums of Europe arrive at our docks in a putrid, rotten condition.

Up to the present no legislation is in force to endeavour to remedy it. Consequently the foreigner continues to send us eggs which frequently, at the time of despatch, he recognises are unfit for consumption, knowing that they will be accepted and paid for.

There are no marks of identification on them, by which the public in the future may protect themselves by refusing to buy them.

It is recognised that the poultry industry of this country has not yet reached the size to enable it to supply the entire nation's demands, but it is rapidly expanding, and at the moment is receiving valuable Government assistance, in regard to scientific research.

It is essential, therefore, that we must continue to import large quantities, but surely there should be some control at the ports to enforce only the admission, or at least the distribution, of eggs fit for consumption.

Denmark, Holland, and France send eggs which arrive in splendid condition, and obtain a high price in the market. The Colonies, including Australia, South Africa, Canada and New Zealand are also sending smaller quantities.

From Poland, Roumania, Morocco, Lithuania, Galicia, Russia, Servia, China and Egypt we receive large quantities of varying quality, frequently 30 or 50 per cent. are putrid.

The butcher or fishmonger who offers for sale produce unfit for human consumption is heavily prosecuted. The milk dealer is compelled to keep his milk up to standard strength. Then why should not some restriction or examination be placed upon foreign eggs before they leave the docks, and not throw the onus on the retailer or consumer?

It is no answer to say that, owing to a shell, the quality cannot be discerned. It is an easy matter to examine every egg by means of an electric light apparatus, and the cost would not be much beyond one shilling a thousand.

A large number of the importers of foreign eggs are themselves of foreign extraction, and it can well be imagined the opposition and false statements that would be brought forward against any scheme of examination.

Trouble and slight expense should not be considered an argument. What the Dane and Dutchman consider necessary to do to maintain their own reputation should be enforced on other nations, and could not be considered a hardship.

Many eggs from the East are two or more months old when they arrive, and frequently more on a rising market. If restrictions were enforced, greater care would be taken before despatch to enable them to arrive in better condition.

If only sterile eggs were imported the same trouble would not be present.

Male birds should never be allowed to run with hens, except when the eggs are being used for incubating purposes. An unfertile egg will stand great heat, and wide extremes of temperature, without any possibility of germination. It should, however, be recognised that most foreign eggs do not come from poultry farms, but largely from what may be called backyarders, or from small peasants who keep a few birds only, consequently control in this respect may be difficult. Moreover, in some countries, not only the birds but the people themselves, such as the Chinese, live in filth.

One of the worst features, however, is that these low-grade foreign eggs are mixed with English eggs and sold as home produce, getting the English farmer into bad repute. Not only is this mixing carried on by many retailers, but by the higglers who collect English eggs in the country districts. Unfortunately this fraudulent practice is mostly carried on during the autumn and winter months, when English eggs are scarce and dear. The

(Continued at Foot of Column on Next Page).

APPLICANTS FOR MEMBERSHIP—*continued.*

Elliott, Miss M., Woodbine Cottage, Slaggyford, Via Carlisle.
Allan, Arch., The Jaw Poultry Farm, Milngavie, near Glasgow.
Turner, Capt. N. T. Barwell, M.B.E., Five Ways, Baydon, S.O. Wilts.

Gabriel, Major, O.B., M.A., Watford Poultry Farm, Watford, Herts.

Massy, Capt. I. P., Newick, Heathfield, Sussex.
Robson, E. C., Drumburgh, Cumberland.
Powell, Roger, Charity Farm, Horeham Road, E. Sussex.
Livings, Miss D. M., Ashgrove P. Farm, Gt. Munden, near Ware, Herts.

Williams, Capt. Leslie, Ashways, Bickley, Kent.
Bain, Miss I., Instructress, College Office, 2, Culbard St., Elgin, Morayshire.

Walker, Thos. Wm., "Lochgoin," 4, Bingley Street, Wolverhampton.

May, F. E., Ulting Grove, Maldon, Essex.
Butler, S., Mansell Road, Wellington, Shropshire.
Armitage, Miss A. M., Colshaw Hall, Over Peover, Knutsford, Cheshire

Knapman, G. B., Hugglett's Farm, Heathfield, Sussex.
Tutton, Gordon O., 47, Wimbledon Park Road, S.W.18.
Dawson, P. J., 31, Lucas Street, St. John's, London, S.E.8.
Mullett, Richard C., 48, Burton Road, Kingston-on-Thames.
Woodcock, Chas. Bardsley, Flimwell, Hawkhurst, Kent.
Herzeele, W. Van, Les Cyjores, La Trinite Victor, near Nice, Alpes Marit, France

Longford, Herbert G., Abingdon, Berks.
Andrews, Wm., Frijerning Hall, Ingatestone, Essex.
Luckin, Edgar J., The Parsonage, High Easter, Chelmsford.
Daukes, Henry Clendon, Oak Cottage, Blindley Heath, Lingfield, Surrey

Earle, Chas. F., 144, Morden Road, Blackheath, S.E.3.
Thorpe, T. R. S., Corney, Bootle, Cumberland.
Willis, L. J., Basildon, Billericay, Essex.
Gow, Mrs. Ella, Westwood, Windlesham, Surrey.
Bidford, Miss, 237, Whitehouse Lane, S. Norwood, S.E.25.
Mawal, John, 15, Church Road, Burnham-on-Crouch, Essex.
Lowther, L. C., The Old Quarry, Ashtead, Surrey.

The Palace Show

Are there too many shows? That is the question one feels inclined to ask after the Palace; for, in spite of the wonderful entry, the ideal conditions, and with its high traditions to back it, the public did not turn up in big numbers. In fact the attendance on all three days was decidedly poor. We have hardly recovered from the Dairy Show. In less than three weeks from the conclusion of the Palace—on December 9th and the following days to be exact—we shall be at Olympia, and one is bound to conclude that to hold three big shows in London within such a short period is a mistake, and it would be far better to limit them to two.

The S.P.B.A. stand was very effective. In fact, the best stand we have had so far at any show, and it was universally admired. Many of our members paid us a visit, and we had numerous callers whom we were able to interest in the work of the association, but after the excitement and crowds at the Dairy, the calm was a little too calm.

Wonderful as the poultry exhibit was, one got the impression that the fancy as well as the utility breeder had suffered from the apology for a summer we experienced. That may only be a personal impression, but it was very strong. In one or two sections, Langshans, for example, and Buff Orpingtons, the birds appeared far below the standard of last year.

There were nineteen classes of Leghorns, White, on the whole were disappointing, but Browns and Blacks were excellent, especially the former. Cuckoos attracted some attention, possibly in view of the sex-linked cross, but one doubts the economic value of using two Light breeds for this purpose.

Rhode Island Red fanciers did not support the show as one would have expected them to do, and the birds were not up to last year's standard.

Plymouth Rocks, both Buff and Barred, were a really good lot, and it is very evident that both varieties are attracting a lot more public interest; the former I thought an especially good lot.

There is a suggestion, I see, that a committee should be formed with the object of enquiring in what respects the Poultry Club standards fail to meet the requirements of utility breeders. I do not think the standards are at fault. There would be little need of modification if the exhibits were judged to standard, and until there is control in this direction, I fail to see what good is to be done by discussing them. When, for example, we see the wide difference in the Minorcas exhibited in the utility section, and in the fancy, and between the Australorp and the Black Orpington, one feels that it would be wiser to leave these matters to the commonsense of the breeder, rather than to spend time in attempting to modify standards, with the knowledge that each judge will interpret them as it pleases him. One admires the skill of the fancier. Some of the exhibits were marvels of skilful breeding, but the extremists too often get their way.

Bresse were a great show. Mrs. Onslow Piercy swept the board in Blacks. They were very typical. The general comment was "lack of size." We certainly don't want them too small, and there is need for care in this respect. The Whites were not so numerous. On the whole they were a good lot, and Mr. Barker won well with a cock of good colour and shape. Mr. Hunter's winning pullet was a typical Bresse, with good head and eye. It is a pity, however, that awards were made to birds which failed in shape.

Sussex were a great show, drawing 500 entries. The Red is becoming very popular, and has a great future before it. They attracted a lot of attention, and are decidedly on the "up" grade. Lights were a splendid lot. It is to be hoped that the Sussex Club will stick to the policy which has done so much to place the breed in its present proud position, and will not give undue value to size. There was a tendency to coarseness in some of the exhibits. Buffs have a long way to go, but have certainly advanced. Whether they will ever become popular time will prove. Speckleds and Browns were well represented.

The Wyandotte is as popular as ever. Whites naturally being the most numerous. It is difficult to know what the judges are after in utility classes. In some cases it appears to be show points, and in others utility. One cannot but notice this in the Wyandottes and the Rhode Island Reds, particularly in the latter, where colour is too often the deciding factor. Buff Wyandottes failed in shape, and colour was none too good. Blacks do not show much advance. Columbians were not so well supported as one would expect.

Barnevelders numbered 84. Is it not a mistake to have both utility and exhibition classes for a breed which has yet to make its way? I cannot see the need for this distinction, and the inference is that the exhibition cull may win in the utility classes, or the exhibition bird has no value for utility breeders.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES,
HOYLANDS POULTRY FARM ,INGOL, PRESTON.

The ANNUAL GENERAL MEETING will be held in the Master Builders' rooms, Mount Street, Preston, on Saturday, December 6th, 1924. Chair to be taken at 3 p.m.

AGENDA.—(1) Minutes of last Annual General Meeting. (2) Correspondence. (3) Secretary's Report. (4) Treasurer's Report and Balance Sheet. (5) Auditor's Report. (6) Show Committee's Report. (7) President's Address. (8) Election of Officers for 1925 (Nominations to be in by November 29th): President, Chairman, Organising Secretary, Hon. Treasurer, Hon. Auditor. (9) Accounts. (10) Any other business.

The following Sub-Committees are requested to meet at the same place at 2 p.m.:—**Educational and Propaganda:** Messrs. J. R. Hull, W. Grove, T. Edmundson, J. Dewhurst J. Whalley, W. Fletcher, and W. A. Hall; **Laying Test:** Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris; **Finance:** Messrs J. R. Jill, W. Hamnett, F. J. Butterworth, J. P. Willacy, and S. Marson.

E. COLLIER, Organising Secretary.

THE DANGER OF THE FOREIGN YOLK.—Continued.

Merchandise Marks Act, when passed, will put an end to much of this business.

Hundreds of tons of Chinese eggs, without shells and packed in casks are received in London docks annually mostly for confectioners' use. These contain a certain percentage of boric acid as a preservative, but even then large quantities are unfit for consumption.

The British poultry industry has never asked for a tariff to be imposed on foreign eggs, but it has been associated with the Merchandise Marks Act in an endeavour to stop this unsatisfactory method of trading.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, NOVEMBER 21st, 1924.

GRAIN AND FEEDING STUFFS.—Fair supplies of English wheat are being marketed, and although prices show little material alteration as compared with last week, on the whole a firmer tendency is in evidence. Imported wheat has fluctuated somewhat during the week, but on the average quotations are rather lower than those recorded last week. Good samples of English malting barley are not plentiful, but there is little demand, although rather more activity is reported in London, where best lots make 20s. to 21s. 3d. per cwt. Feeding barley is a dull trade with prices barely maintained, while imported barleys are slow and easier. English oats meet a fair trade at about recent prices, white oats making from 9s. 6d. to 11s. 6d. per cwt., but imported oats and maize are in only moderate request and are cheaper, Argentine maize realising 10s. 3d. to 10s. 9d. per cwt., as against 10s .5d. to 11s. last week.

Milling offals show a further decline, bran being quoted in London at £8 7s. 6d. and middlings at £9 10s. per ton, a reduction of 15s. compared with the prices ruling at the end of October. Oil cakes continue in slow demand for the time of year, and prices are a shade easier in a few cases, although still considerably higher than at this time last year.

MILLERS' OFFALS.—Bran (British): Bristol, £8 15s; Hull, £8 12s; Liverpool, £9; London, £8 7s. Broad Bran: Hull, £10 2s; London, £9 10s. Middlings—Fine (Imported): London, £11 5s; Coarse (British): Bristol, £10 12s; Hull, £11 5s; Liverpool, £10 5s; London, £9 10s. Pollards (Imported): Bristol, £9 5s; Hull, £8 15s; Liverpool, £9 2s; London, £9. Rice Bran: Bristol, £9 7s; Liverpool, £9 2s. MEAL.—Barley Meal: Bristol, £13; Hull, £13 15s; Liverpool, £11 17s; London, £13 5s. Maize Meal: Bristol, £12 5s; Hull, £11 13s; London, £11 10s. Maize Germ Meal: Bristol, £12 10s; Hull, £11 15s; London, £11 12s. Maize Gluten Feed: Bristol, £12 5s; London, £11 15s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 18s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £21.

EGGS AND DEAD POULTRY.

English eggs are very scarce and prices are firm, while the best imported descriptions are inclined to advance. Dead poultry remains in firm demand, but prices are somewhat irregular.

Week-end Prices—Eggs (per 120): British: 34s 0d, 32s 6d; Irish: 29s 0d, 27s 0d; Danish: 32s 0d, 28s 6d; Dutch: 34s 0d, 30s 0d; Russian: 17s 0d, 16s 0d; Belgian: 31s 0d, 29s 0d; Italian: 26s 0d, 23s 0d; Egyptian: 13s 0d, 12s 0d; Lithuanian: 18s 6d, 15s 0d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d, 1s 5d; Irish: 1s 3d, 1s 1d; Others: 1s 4d, 1s 2d. Ducks: 1s 2d, 11d. Geese: 1s 2d, 10d. Turkeys: 1s 10d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 3s 5d; Second, 3s 3½d. Birmingham: First, 3s 6d; Second, 3s 0d. Bridgwater: First, 3s 9d; Second, 3s 8d. Carlisle: First, 4s 0d. Chelmsford: First, 3s 5½d; Second, 3s 3½d. Denbigh: First, 3s 6d; Second, 3s 4d. Derby: First, 3s 5d. Dorchester: First, 3s 4d. Exeter: First, 3s 6d. Hereford: First, 3s 6d. Ipswich: First, 3s 9d; Second, 3s 3d. King's Lynn: First, 3s 6d; Second, 3s 0d. Lincoln: First, 3s 6d. Llandilo: First, 3s 4d. Newport (Mon.): First, 3s 6d; Second, 3s 3d. Norwich: First, 3s 6d; Second, 3s 1d. Oswestry: First, 3s 11d; Second, 3s 8d. Penzance: First, 3s 0d; Second, 2s 11d. St. Ives (Hunts): First, 3s 5½d; Second, 3s 3½d. Salisbury: First, 3s 5d; Second, 3s 1d. Shrewsbury: First, 3s 9d; Second, 3s 6d. Skipton: First, 3s 6d. Truro: First, 3s 2d. York: First, 3s 8d; Second, 3s 6d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 9d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 8d; Second, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 0d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 2d. Hereford: First, 1s 2d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

*Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, November 26th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

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Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

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All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EGGS

THE OFFICIAL ORGAN OF THE

Scientific Poultry Breeders' Association

WEDNESDAY, DECEMBER 3rd, 1924.

Editorial.

MR. SLADE'S LETTER.

Whatever opinion our readers may form of the proposals contained in Mr. Slade's letter, which appeared in last week's issue of "Eggs," there can be no doubt that the question he raises is one of the utmost importance, and demands our most serious attention. At the present time, the egg farmer is facing a crisis, the margin of profit is small, smaller than it has been for years, the costs of production are increasing, and we cannot hope for increased prices for our produce. Food prices are rising, and will probably continue to rise. Attempts to economise in this direction generally mean that the stock suffers, and besides, even when some economy is effected, it cannot affect the general situation. If we are to face this big problem, we must get to the heart of it, and not content ourselves with fiddling round the outskirts.

If we have any criticism to make of Mr. Slade's proposal, it is that he has not gone far enough. He has simply made a suggestion and endeavoured to show some of its advantages; but he has not shown us how he proposes to put his suggestion nto effect, nor has he hinted at the organisation which would be necessary before it became effective.

In America he says:—

> "An increasing number of farmers replenish their stocks by buying day-old chicks from reputable hatcheries, which make a speciality of supplying high-grade stock. They say it pays better to buy 'good' baby chicks than to mate and hatch themselves."
>
> "Would it pay egg farmers in this country to follow the American example? On the general principle that specialisation always results in greater efficiency, the answer seems to me to be 'yes.'"

He then proceeds to outline the main economics o be effected.

We must first realise the importance to the egg farmer of "GOOD" baby chicks, chicks not only healthy and vigorous, but which will deliver the goods when they reach maturity. The egg farmer at the present time "culls" his flock, selects his breeders, and buys pedigree cockerels, if he does not get eggs or chicks from the pedigree breeder, and rear his own breeding cockerels. Approximately we may say that the eggs which will be incubated would be sold commercially for 1s. 6d. a dozen. We mention this because Mr. Slade writes of the saving of loss made on eggs sold instead of being set.

> "There are many breeders specialising in breeding high-grade utility stock who could supply the day-olds, but they could not be supplied at the prices some day-olds are offered at," remarks Mr. Slade.

That is the crucial point of the whole problem. Can the pedigree breeder supply the egg farmer with healthy and vigorous chicks at a price which would leave the latter with a margin of profit, remembering always that he has to do the rearing?

To come to what Mr. Slade says is the main point. He puts the question and answer in this form:—

> Q. "How can it be cheaper for a man to pay another breeder a profit than to breed himself?"
>
> A. "The answer is that the specialist breeder can produce good stock with a certainty cheaper than the farmer can produce equally good stock with equal certainty, and the savings and extra profit the farmer can make by organising his business as an egg farm only more than suffice to pay the breeder's profit."

Mr. Slade will pardon us if we say the answer is not convincing. He has already drawn attention to the fact that pedigree breeding and heavy culling is necessary to maintain the prolificacy of a flock, and to pay an extra shilling or sixpence a chick may seem a lot, that there is a difference of 50 eggs between a good and a bad layer; but we are convinced that chicks bred as he hints could not be supplied by the specialist at even a shilling a chick more than the cost of the chick produced by the farmer himself. We cannot deal with extremes. True there is a difference between the good and the bad layer of 50 eggs or more, and there may be that difference between good and bad flocks, but there is not that difference or anything like it between a **good** commercial flock and a flock of similar size bred by any specialist breeder in the country. We will assume flocks at a minimum number of four hundred. The specialist breeder cannot produce **merely good stock** at a cheaper price than the farmer. He can produce the highest class stock cheaper than the farmer, and, in our opinion, the cost of producing these chicks would mean a price which would be prohibitive.

It seems to us that the commercial egg farmer can at the present time incubate his own eggs, and hatch his own chicks, more cheaply and economically than he can buy; that he will never be able to buy cheaply enough from specialist breeders—that is pedigree breeders, as instanced by Mr. Slade—to leave himself a sufficient margin of profit.

There is, as we said before, the question of organisation before anything of this kind could be attempted; there is a wide difference between the specialist breeder and the reputable hatcheries in America to which Mr. Slade refers. We feel that the commercial egg farmer can never afford to pay the specialist breeder the price he must of necessity demand. At present the facilities for supplying chicks to the commercial egg farmer at an economical price do not, so far as we can see, exist in this country; to those already established with their incubators and plant, we fail to see that the advantages suggested by Mr. Slade are sufficient. The matter, however, deserves discussion, and we leave it to our readers.

BALDERSTONE AND DISTRICT LAYING TEST.

The first month's report of the Balderstone and District U.P.S. laying competition is as follows. Figures are eggs and points respectively:—

Section 1.—Light Breeds.—A. Sharples, 95, 752; A. Sharples, 90, 698; R. Duckworth, 80, 618; Amos Nelson, Ltd., 60, 384; T. H. Barker and Son, 51, 376; J. H. Holgate, 48, 370.

Section 2.—Heavy Breeds.—H. Smalley, 102, 758; T. Ramsbottom, 95. 716; S. Sefton, 46, 342; J. A. Eddleston, 38, 286; W. Smith, 31, 242; J. Smith, 26, 200.

Section 3.—Large Flock, any breed.—J. Smith, 19, 148; H. Smalley, 20, 146; R. Rawcliffe, 18, 144; Mrs. S. Sefton, 18, 138; Mrs. M. G M. Tatton, 15, 118; F. Ainsworth, 15, 116.

Ribbons for the best scores for the month are awarded to A. Sharples, H. Smalley, and J. Smith. The egg yield on the first day of the month was 31, and on the last 54. Fifty birds have not yet contributed to the egg basket. The average per bird for the month was 8.18, and the average for birds actually having laid during the month 13.25.

The houses used in the competition are of the lean-to type, 10ft. long by 5ft. wide, 6ft. high in front and 5ft. at the back, with a division in the centre, thus accommodating two pens of five birds each, and allowing five square feet floor space per bird. Each pen has a separate grass run 14 yards by 8 yards, giving each bird 22 square yards.

YORKSHIRE LAYING TRIALS—1st PERIOD.

Figures are eggs and points respectively:—

White Wyandottes.—F. Snowden, 87, 522; J. A. Howarth, 89, 428; S. and T. Greenall, 73, 393; A. Thompson, 73, 372.

White Leghorns.—J. Thomas, 57, 318; Chas. Ashton, 62, 294; R. Rodwell, 37, 222; A. Snowden, 36, 216.

Black Leghorns.—Ben Birkhead, 40, 240; R. Rodwell, 22, 132.

Australorps.—Australorps Farms, Ltd., 83, 448; Joseph Hodgson, 65, 390; Australorps Farms, Ltd., 64, 271.

R.I. Reds.—W. Measures, 62, 308; Alderson Smith, 45, 206; Mrs. Athol Stuart, 31, 179; Nalder and Smith, 26, 156.

Sussex.—Nalder and Smith, 27, 144; A. Milling, 16, 84.

A.O.V. Heavy Breed.—J. Martin, 70, 419; L. H. Wace, 23, 53.

A.O.V. Light Breed.—Blaksley and Blyth, 40, 239; G. M. L. Booth, 29, 174; F. E. Fooks, 25, 150.

SINGLE BIRDS.—White Wyandottes.—H. R. Parsons, 27, 162; A. D. Prince, 15, 90; H. Marquis, 11, 66.

White Leghorns.—H. Marquis, 22, 132; F. C. Tomlinson, 18, 107; F. Drake, 12, 71.

A.O.V. Light Breed.—Miss Cavanagh, 16, 96; Mrs. Athol Stuart, 15, 90; F. E Fooks, 12, 72.

A.O.V. Heavy Breed.—Mrs. Athol Stuart, 20, 120; M. and A. E. Dalby, 16, 95; J. H Emmerton, 15, 90.

Modern Poultry Feeding.

By TOM NEWMAN.

Several readers have written this week to know whether swedes or mangolds will suffice for green food for the birds. The answer to this is—NO. As I have previously pointed out, all the root vegetables, swedes, potatoes, mangolds, beet, and turnips, are very deficient in the essential lime salts, and if these are all that can be supplied, the salt mixture given in the issue of the 12th November should be used, or alfalfa used in the mash.

In answer to many questions on the subject, I am not able to advise the use of whale meal at present. Much interest was taken in the sample shown at the Dairy and Palace; the albuminoid content is high, but so is the oil, and I am afraid to recommend it until a fair test has been made, as there is on analysis an excess of the latter, and at present we do not know that the birds can assimilate it.

I have been asked by three readers to give the analysis of an egg. The following is taken from Sherman's "Chemistry of Food," and it should be remembered that these qualities are variable, as the constituents are derived from foodstuffs, and just as milk may vary with the breed or the individual in its composition, so will an egg.

Protein.	Fats.	Mineral Salts.	Water.
13.4	10.5	0.9	66.1

This is given as the edible portion of an uncooked egg.

There is an enormous amount of damaged wheat about this year, and again it becomes necessary to warn readers to be careful in their purchases, as several cases have come to hand of birds going right out of condition. There has been diarrhoea, listlessness, and partial moult, with, of course, an almost entire cessation of laying. In some of these cases the condition was directly attributable to the damaged wheat.

Complaints are to hand of hens long through their moult which have not yet started to lay. Often this is due to their being in an overfat condition; with heavy breeds this is not uncommon. The fat accumulates after the moult is complete, and a little care is always necessary then. I do not believe in the starvation so often advised, nor in dosing them with Epsom salts. A far better plan to get them in condition is to bulk the mash, if a dry one; that is to say, add more bran, and make them scratch for every grain of corn. Maize or barley should be cut out of the ration.

A Wiltshire reader complains that his Leghorns are laying very small eggs, and asks for a menu which will improve size. One cannot help much in this matter unless we can demonstrate that it is due to under-feeding in its various forms that the eggs are small. In this case I am not sure that it is so, as the pullets are laying well, not intermittently as is so often the case when the feeding is at fault. There is room for improvement, but I cannot promise better results by altering the mash, which is as follows:—Brewers' grains: Bran, one part each; middlings, three parts; biscuit meal, one part; meat meal, half part. Wheat and oats as the grain feed, equal parts. It would be advisable to omit the bran, increase the middlings to four parts, and add a half part maize meal. This should lead to some improvement in egg size, but my correspondent must not expect much, as I believe the trouble is due to the precocity of the pullets.

A reader writes that he has seen a statement to the effect that Palm Nut Kernel Meal has a food value equivalent to a good sample of middlings. If this is true, he says why not use it, as at the present time it is cheaper. The analysis is approximately the same, but our war experience taught us that the nutritive value is not equal to that of a good sample of middlings. It was decidedly unpalatable; the birds did not take to it readily, and the chemically-extracted caused severe scouring. It took sometime before the birds became accustomed to it, and on one large farm where it was tried the result was disastrous; egg production practically ceased, the whole flock went into a partial moult. If any of you feel inclined to give it a further trial you will be wise to introduce it into the ration very gradually, as otherwise it is nearly sure to result in a very sharp decrease in the egg yield for the time being. Of course, one appreciates the necessity of feeding as cheaply and economically as possible, but cheapness and economy are not always the same thing. Here is a cheap mash for egg production only; it is not suitable for breeders or growing stock: Bran, 1lb.; middlings, 4lbs.; maize meal, 2lbs.; soya bean meal, ½lb.; meat and bone meal, half part. This can be used wet or dry. I do not know of a cheaper mash at the present time. That is to say, when the whole of the ingredients have to be purchased.

In answer to another reader, who wants a formula which will produce the hatchable egg, I cannot improve on that given in these columns some three or four weeks ago; feeding alone will not solve the question. It is a breeder's problem very largely. You will appreciate that, if an egg is deficient in the constituents which will produce a healthy vigorous chick, then we can trace the poor hatchability in some cases to the feeding, but that is by no means always the case. However you may feed some hens they will always produce a high percentage of unhatchable eggs. Of course, this may in some cases be due to the bodily condition, as when a bird is so fat as to cause fatty degeneration of the essential sexual organs, but more often than not this trouble is inherent, and the feeding is not the predisposing cause.

Three complaints in one week as to bad coloured yolks, one relating to some Khaki-Campbell Ducks. The owner who had this variety for the first time was very upset, as her Runners had never erred in this respect, and the query asked was whether the Khakis were in the habit of producing such eggs. The real cause, as in one of the others, was that the birds had access to acorns. In the other, the owner who kept his birds on earth runs, had bought a quantity of wheat cheaply, and was using this as the sole grain, and also ground some of it, and was using it in the mash. This resulted in very pale yolks. Had there been an ample supply of green food the trouble would not have occurred. Improvement will be effected by feeding maize, and adding alfalfa or clover to the mash.

(Continued at Foot of Next Column.)

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

CHAPTER V.

One of the great problems which confront the chicken rearer is the difficulty of supplying unlimited green food during the early months of the year. Of all green foods, chickweed is the salad most beloved by young chicks. Unfortunately for the chicken enthusiast, chickweed is not appreciated by farmers, so that this valuable commodity is not so easily obtained during January, February and March, as might be imagined. Turnip fields, between the drills, prove the best hunting-ground, and one blesses the careless farmer who has neglected to weed his turnips. However, even the worst of farmers ploughs his turnip fields some time during the Spring, and then bang goes your succulent supply. The difficulties of getting a constant and steady provision of green food during the early spring led me to experiment with various cultivated crops, and I top the list with MUSTARD. This is one of the quickest growing crops in existence, and the seed is cheap and easy to sow. In about a fortnight after sowing the ground is carpeted with young green stuff, and very soon you can go forth and pull up a bucketful without appreciably thinning the verdure. Young chicks are quite fond of it at this stage. Before very long the mustard is a couple of feet high, and the familiar yellow flower appears. I believe that if it is cut, stocked and threshed when the seed is ripe, you get an excellent mustard straw litter, and I intend to experiment on these lines next Spring.

Reverting now to the two main troubles I referred to in an earlier chapter—erratic hatching and leg-weakness amongst my intensive chicks—I believe and devoutly hope that last Spring I solved both these mysteries. My hatching had degenerated in the old familiar manner to a very depressing percentage, and once again I produced my old Tycos Hygrometer friends, and threw them into the fray. Once more I failed to get the right move on to the mercury, in spite of all my water sloshings in the incubator room. With damped spirits and damper boots, I finally came to the conclusion that all this external moisture was perfectly useless to the Gloucester incubators, and that internal moisture was what was really needed. The very slow evaporation of water in the special water trays supplied with the incubators showed that this method was totally inadequate, so I now tried sprinkling the eggs freely directly after turning them. The hygrometers responded merrily, so from the third day onwards I continued this liberal morning and evening sprinkling. On the nineteenth day I gave the eggs a generous last sprinkling, and before finally closing the incubators I placed an extra piece of sacking wrung out in boiling water on the bottom of each nursery tray canvas. My hatches exceeded all expectations under these conditions. Not only were the dead-in-shell reduced to a minimum, but the chicks came out evenly—that is, simultaneously—the hatch being completed within twelve hours or so from the time of chipping. The chickens also looked much bigger, fluffier and livelier than heretofore, and proved full of vim and stamina. As far as I am concerned, I am convinced that this extra moisture has transformed the Gloucester from a somewhat erratic hatcher into a very reliable one. Yet I well remember that on the day I had the pleasure of lunching with Mr. Godfrey, he assured me that he had never found any advantage in supplying extra moisture in this way. I visited him on a blazing hot July day, and Mr. Godfrey most hospitably supplied me with some extra internal moisture, which I found very grateful and comforting. I have since thought that as the Gloucester works lie in a very pronounced valley, there is probably sufficient moisture in the air to ensure successful hatching. Over here we certainly get plenty " droppings " from the sky, but the atmosphere is, as a rule, fairly dry owing to the situation—hence it appears necessary to supply additional moisture to the eggs in hot-air incubators. The deduction follows that incubation must be looked on as a highly scientific problem, and not only the temperature but the moisture present therein must be scientifically ascertained—the former by the usual thermometer method—the latter by the less usual hygrometer method.

But enough of this moisture question—it is becoming somewhat dry.

I have already described the difficulties we had so far experienced in rearing chickens by means of various brooders—fireless, oil-lamp type, and anthracite stoves. As our ambitions had mounted annually, so had it become necessary to rear a larger number of pullets each season. The four double Gloucester incubators now in our possession had rendered the hatching of the necessary number of chicks possible, but the brooding had so far been a bit of a nightmare. To rear a thousand profitable pullets in one season is a task of considerable magnitude, and if the prospective poultry farmer can do this successfully, I think he can safely say that he is adapted for the work. In 1922 we had settled down to attempting this Herculean task with our four 500 chick size anthracite stoves, and had for the previous two seasons actually succeeded in rearing from eight to nine hundred pullets annually. But what a strain it was! " In the Spring a rearer's fancy sadly turns to thoughts of stoves." My fancy was just beginning to turn in this direction in the winter of 1923, when I received a letter from a Belfast Hot-Water and Plumbing Engineer, whom I had met many years before, asking if he might come and see my poultry farm, as he was thinking of keeping a hen, or words to that effect. Being always ready to pick another man's brain—(always supposing he possesses a few)—I invited him to come along. Mr. X., as I shall call him, duly arrived, and I began showing him around the place one Saturday afternoon. I very soon saw he was a man who really recognised that a certain amount of brain work was necessary to successfully keep even a hen or two, and we soon became involved in interesting discussions. When we arrived at the Brooder House, Mr. X. waxed very eloquent. Here, as he said, was indeed a subject for the modern, practical, and scientific plumber, who was also a prospective poultry-keeper, to deal with. He had an idea of his own of a comparatively simple method of utilising hot-water pipes in this connection, and as he guaranteed that the cost of putting in a two thousand chick size plant would be very reasonable, I succumbed to his arguments, and decided to let him experiment at my expense. The plant was duly installed by Mr. X., personally, in the nick of time to receive our first hatch. From the very first it proved a great success. The replacing of four anthracite stoves by one boiler stove effected enormous economy, both in labour and coal, and the chickens did well from the start. But I noticed that even under the pipes the dreaded leg-weakness was threatening to make its appearance amongst my earlier broods, and having long since decided that diet had nothing to do with this scourge, I luckily hit on the true remedy at the first attempt—this remedy being ventilation beneath the chicks when in their heated brooders.

Curiously enough, within a few weeks of this discovery, I noticed that many writers in " Eggs " had apparently solved their leg-weak troubles in the same way.

Suffice it to add that this season's chick-rearing was done more successfully, and (what is almost equally important) with infinitely less labour, than any former year. Even during the earlier months I was enabled to sleep in my bed for uninterrupted stretches of six hours or so, whilst the chicks slept equally snugly on their ventilated mattresses. I can assure you that I am becoming quite a water enthusiast. Hot-water in the incubators, hot-water in the brooders—both introduced with equal success. In the tumbler, I prefer it diluted, merely for the stomach's sake, but my own health needs a different oil to the egg machine.

Last season was certainly a wet season in every way—possibly the Weather Clerk has had rearing troubles recently, hence he decided last season to adopt the water cure himself.

But I think he should practise moderation in his curative methods, and allow the sun to do its bit.

I have now run through, in a sort of rambling way, some of our experiences and difficulties in elevating Ardmore Poultry Farm from a six-hen concern to its present size of a 2,500 Hen Farm. The reader must remember that these are the troubles that confront even BRAINY people like ourselves, and if he should feel that his brains are not quite up to the mark, he must make allowance for that in estimating the probable chances of success in the Poultry Venture!

This account would not be complete without an accurate survey of the business end of it. To show this business end fairly and accurately, one must keep books in a businesslike way—that is, in such a way that any trained auditor can take your books and present

(Continued at Foot of Column on Next Page).

Egg Size in Ducks.

By G. C. HESELTINE.

It is said that "nothing succeeds like success." This proverb, like so many others, gains acceptance because of its "truth at first sight." It is only **superficially** true. In the realm of utility poultry culture it is obvious to the least observant that success has failed, and failed badly, in particular directions. We have succeeded in producing 300-eggers, but we have failed to keep up the quality of the stock in so doing. We have succeeded in producing good layers and **bad birds,** as anyone who looks at some of the lamentable things which pass for specimens of the more popular breeds will see for himself.

The popularity and success of laying ducks is fraught with danger. The red light is already shining brightly. Ducks have put up splendid laying records, improving in numbers each year and **decreasing in egg-size each year!** The decline in egg-size has followed the increase in production with relentless persistency, and this should be our warning. At the National Laying Test the percentage of second-grade duck eggs is already double that of last year, and the greatest decline in egg-size is apparent in the breeds which have put up the highest records.

Without attempting to make invidious comparisons it is worthy of note that the breeds which make **good** but not phenomenal records lay practically no second-grade eggs. In 1922-3 Buff Orpington Ducks, with an average of 177.8 per bird, laid only **three** eggs under weight, and in the current test, with an average of 153 to date, they have laid only fourteen eggs under weight amongst forty-five ducks in forty-four weeks.

The lesson is painfully obvious. The craze for mere numbers leads to a carelessness with regard to other important factors, which is the first step to degeneration. It will be clear to anyone familiar with the conditions of breeding poultry that decline in egg-size will not be the only decline in the stock. It is symptomatic of general decline in stock quality.

Decline in egg-size is accompanied by decline in hatchability and in chick-size. It is true, of course, that in individual instances a small egg may give a bird which will grow to full size, but the chances are very much against it and very much in favour of the production of weak and puny stock. Disease and all the rearing difficulties which we find amongst degenerate fowls, but from which ducks are so far immune, will follow as surely as night follows day.

There is no excuse for decline in egg-size in ducks, or, indeed, for any degeneration solely because the ducks are bred for laying. We have our glaring example and warning before us, and if we do not act accordingly and breed for **quality first** and numbers a bad second, we shall deserve all we get—what little we get.

It must be remembered, too, that apart from deterioration of stock, of which declining egg-size is a symptom, there are other reasons why we should keep up the size of duck eggs. A good duck egg is value for money. It is better value than a hen egg, both on the score of quantity (weight) and quality (food value), as the analysis shows. The size of duck eggs is one of its recommendations to the public, and on this score it is generally possible for the producer to obtain a slightly increased price for duck eggs if he knows his business. Thus size is an asset we must not lose.

It is true enough that excessively large duck eggs are undesirable. They are more costly to produce than medium-sized eggs, and they give, in this sense, too good value for money. They are, moreever, troublesome to market because they need special packing. We must avoid excessively large ducks' eggs in the same way as we must avoid any extremes, but if we breed for size we are in less danger of getting excessive size than we are in danger of losing size if we do not take special precautions.

It has been argued that we ought not to aim for large duck eggs, because if the duck egg is to compete with the hen egg for public favour it should not be bigger than a hen egg, because (1) people do not like very large duck eggs boiled; (2) we must be prepared to sell duck eggs at a price competitive with that of hens' eggs, and the producer cannot afford to do this if he has to incur the extra cost of producing a large egg. These arguments may appeal to commercial men and carry some amount of weight, but from the breeders' point of view they cannot stand for one moment against the one great danger of the egg which is the least bit below normal for the breed. That danger is degeneration in size, stamina, and reproductive capacity of the stock.

Breeders who are breeding for heavy production need never fear that the eggs will be too large. The very operation of breeding for even a good sound average number of eggs for commercial purposes will in itself be a sufficient check on **excessive** egg-size. But so long as you are breed-

(Continued at Foot of Column on Next Page).

THE EGG MACHINE—Continued.

a true balance sheet from them. The proper keeping of books should be one of the most interesting parts of the poultry-keeper's routine, as it presents you with a faithful record in a minature form of all that is going on in your outside poultry world. It is, in fact, closely comparable to map-making in relation to geography—the completed "map" being represented by your Annual Trading Account and Balance Sheet.

This is, to my mind, a subject of such importance that I intend to devote the final chapter of this poultry record solely to the BUSINESS END.

(To be concluded).

Bees and Poultry-keeping

By E. W. D. MADOC.

COMB OR EXTRACTED HONEY?

Whether to work for extracted honey or comb honey in sections, is a question which cannot be decided offhand. Each has its advantages and disadvantages, and the decision must be affected by the preference and position of the individual bee-keeper.

The man with only one or two hives will find he needs less expensive equipment for comb-honey production, but, unfortunately, far more skill is required than to produce extracted honey. Where several hives are kept the cost of the extraction, which is high on only one or two hives, becomes of less importance when it is spread over several colonies. For the man who runs a few colonies as a side line, and who has neither the time nor the inclination to acquire a very thorough knowledge of the subject, the production of extracted honey is generally preferable.

As far as labour is concerned, the comb-honey man has the most work in colony manipulation, because he is certain to be troubled with much swarming, but when the sections are removed from the hives very little work is required to prepare them for sale, whereas the liquid honey has to be extracted, strained and put up in suitable containers.

The market price of comb honey is considerably higher than that of extracted honey, but under equal conditions much more extracted honey will be produced than section honey, and in poor seasons a fair crop of extracted honey may be secured when no comb honey is secured at all. The demand for comb honey, even at a high price, is generally very brisk in the right quarters, but it is difficult to keep in good condition for long periods, and, owing to its fragile nature, it is very hard to pack so as to ensure safe transit by rail. On the other hand, extracted honey will keep for any length of time, and can be packed to travel in perfect safety. It does not sell so easily, because it has to compete with foreign honey in the same form, and many people suspect adulteration in extracted honey, whereas they know that this is impossible with comb honey. In the production of extracted honey, the empty combs are returned to the bees time after time to be refilled. Not only does this save the time required to build new combs, but it saves the bees from the necessity for producing fresh wax every time, and, as it takes from seven to fifteen pounds of honey to make one pound of wax, a considerable saving is effected, quite apart from the strong preference shown by the bees for the drawn-out comb.

The secretion of wax and making of combs has to be conducted at a fairly high temperature in order that the wax may be sufficiently ductile to be worked and moulded into the correct shape, and this process is made considerably harder by the necessity for isolating the comb-builders in the small compartments formed by the sections. The bees show their reluctance to work under these arduous and unnatural conditions of making preparations to swarm and refusing to work in the sections unless compelled to do so by overcrowding.

Diseases of the Kidneys

in Poultry.

In making a large number of post-mortem examinations of birds, the incidence of kidney disease is very striking ; in fact, next to the number of lesions found affecting the liver, the kidneys are most frequently the seat of abnormalities. The kidneys are of the greatest importance to the well-being of the bird, since they are one of the chief means of elimination of body waste, the retention of which leads to impaired health and development, or even to death. It is therefore strange that more attention has not been paid to the study of the diseased conditions of these essential organs, and there is a wide scope for future investigations. The causes of many of the conditions found are not yet clear, as, for instance, the enlarged kidneys often associated with weakly and undeveloped birds, or the kidney showing multiple abscesses throughout its substance. In infectious diseases the kidneys are nearly always affected, the lesions varying from a slight congestion to actual points of haemorrhage, as in cholera and haemorrhagic septicaemia. Ptomaine poisoning or limberneck produces amongst other lesions an acute congestion or inflammation of these organs, and the same may occur after the ingestion of some poisons. In birds that have received a too generous ration of fish meal congestion of the kidneys is frequently found, and often is the only lesion to which death can be attributed. One of the diseased conditions of the kidneys is the inability to eliminate the urates, and this is mostly due to a diet too rich in protein. The uric acid content of the blood becomes increased, and the urates, chiefly composed of sodium urate, are deposited either over the surface

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EGG SIZE IN DUCKS—Continued.

ing for eggs there is no check on **diminishing** egg-size except your own careful selection of the breeding stock and the eggs for incubation.

It is not sufficient to select large eggs for hatching. You must only mate ducks which lay large eggs from the start, and which continue to lay large eggs to the end of their laying season. A duck which inherits the large-egg factor will lay very few small eggs even at the commencement of her laying. Some heavy-laying ducks lose size of egg after a long sequence of laying, and these should be avoided as breeders, not only because they are not actually giving you the eggs you require, but because such falling off in egg-size indicates an undesirable weakness.

A highly profitable egg yield of good-sized eggs is attainable and maintainable. Excessively high egg yield is unprofitable and dangerous.

of the internal organs in the form of a white powder, or in the articular cavities of the joints. In many cases seen post-mortem the pericardium or heart sac is so loaded with these deposits that the heart's action is stopped by mechanical pressure, and death is the result. This condition, to which the name of gout has been given, produces most striking changes in the kidneys themselves; they become paler in colour, and are seen to be packed with the white particles of urate, the canals and ureters stand out prominently, being gorged with the same material, and rendered quite incapable of carrying away the accumulation to the cloaca. Coccidiosis of the kidneys also occurs, the parasites finding their way from the cloaca up the ureter to the renal tubules and thence to the substance of the organ. In this connection, the possibility of an ascending infection from the cloaca to the kidney should not be lost sight of, as is may be the solution of some hitherto unexplained diseased conditions. An exact diagnosis during life is unfortunately very difficult, if not impossible, but unthriftiness, want of appetite, or lameness, associated with the swelling of one or more joints, and any alteration of the urinary deposits from the normal should lead one to suspect kidney trouble and be a signal to lower tension and promote elimination by fasting, reducing the diet, adding a greater proportion of green foods, and the administration of glauber salts either in the drinking water or in the mash for ten days to a fortnight.

The fact that birds have no bladder for the accommodation of urine to be emitted when required, and no conduit in either sex, should be borne in mind, and that the urine even while in the kidney and before maturing in the cloaca is semi-solid, and therefore much more liable to become immovable by reason of further condensation induced by fever and an excess of solid material. The result of this is stoppage of the branches first, and of the common canal later, these standing up to the size of wing quills in some cases examined after death, and containing consolidated urea. There being no movement outwards, the result is absorption, and that form of blood poisoning known uraemic. The symptoms of uraemic poisoning vary from a twisted neck and disposition to look down the bird's back, to a state of coma, in which it invariably ends. If diagnosis were possible during life, it may be that diuretic medicines would move on the pent-up urea and restore normal function, but a condition of coma or profound sleepiness and loss of sensation is the general termination to all diseases in fowls; a fact that should afford comfort to many persons who are wont to grieve over the sufferings of animals. It may be safely asserted that fowls suffer less pain than any other species under domestication, and will continue to behave in a normal manner when afflicted with lesions that would quickly cause death in quadrupeds, or in their owners. Most of their sensibility resides in their skins, and it would be possible to perform the most radical operations if diagnosis were not so difficult. The normal excrement in a healthy bird has a greyish or white crown or pyramid of urea upon it, and any departure from this kind of dropping is proof that digestion or else kidney excretion is out of order. If, instead of the condensation mentioned as accompanying high temperatures or fever, there is diabetes or excessive secretion of urine, there will be dungs passed which have no crown, or the whole of the evacuation may be of a liquid nature, and emitted with some force and to a distance.

It is unfortunate that giving castor oil is a universal practice, without regard to what may be ailing the bird, as it might very well be that a similar dose of sulphate of magnesia or of soda would provide just that amount of kidney stimulation necessary, and, like other salines, reduce the internal temperature and draw off congestions of the internal organs.

ROCHDALE AND DISTRICT POULTRY LEAGUE.

The Rochdale Poultry League Monthly Meeting will be held Wednesday, December 3rd, in the Broadway Cafe, Broadway, Rochdale. Business to commence at 7.45 p.m. prompt. We would also remind our members of the social evening and prize distribution to be held on Wednesday evening, December 10th. A splendid concert has been arranged, and a good hot supper will be served at a nominal charge. All members and their wives or friends are cordially invited. At the last Committee, held on November 19th, it was decided that we recommend 3s. 9d. per dozen as the retail price of new-laid eggs until further notice. It is earnestly desired that members will do their utmost to conform to the prices recommended from time to time.

H. HOLT, Propaganda Secretary.

WEST SURREY POULTRY SOCIETY.

Winter Laying Test, 1924-25, held at The Red Leys Poultry Farm, Normandy, near Guildford, under the management of Messrs. Kirsch and Jeffery.

Report for 1st period, October 5th to November 1st, 1924:—

Class I.—Section A.—Heavy Breeds.—Hudson Bros. (W.W.), 62 eggs; Burrows Lea P.F. (W.W.), 59 eggs; H. W. Homewood (L.S.), 56 eggs; H. J. Willis, Pen 2 (W.W.), 59 eggs; H. W. Homewood (R.I.R.), 50 eggs; A. S. Buckle (W.W.), 49 eggs; H. J. Willis, Pen 1 (W.W.), 45 eggs; E. Thompson (R.I.R.), 42 eggs; H. Rowntree, Pen 1 (W.W.), 36 eggs; G. R. Reakes (L.S.), 32 eggs; F. L. Shelton (W.W.), 12 eggs; T. Ross (L.S.), 10 eggs; H. Rowntree, Pen 2 (W.W.), 9 eggs; A. Stanton (R.I.R.), 5 eggs.

Class I.—Section B.—Light Breeds.—Burrows Lea P.F. (W.L.), 38 eggs; Hudson Bros, Pen 1 (W.L.), 34 eggs; H. G. Hood and Sons (W.L.), 23 eggs; H. G. Hood & Sons (B.L.), 29 eggs; Mrs. C. R. Harding, Pen 1 (W.L.), 20 eggs; H. Rowntree (B.L.), 16 eggs; Hudson Bros, Pen 2 (W.L.), 10 eggs; Mrs. C. R. Harding, Pen 2 (W.L.), 9 eggs; T. H. Luck (B.L.), 7 eggs; W .E. Saul (W.L.), 7 eggs; E. Thompson (W.L.), 7 eggs.

Class II.—Section C.—Single Birds, Heavy Breeds.—Mrs. Willshire (W.W.), 18 eggs; E .Thompson (R.I.R.), 16 eggs; Hudson Bros. (W.W.), 8 eggs.

Class II.—Section D.—Single Birds, Light Breeds.—Hudson Bros. (W.L.), 12 eggs; H. G. Hood and Sons (W.L.), 7 eggs; E. Thompson (W.L.), 6 eggs; W. E. Saul (W.L.), 1 egg; Mrs. Willshire (W.L.), 3 eggs.

180, Crookes, Sheffield.

Dear Sir,—Please find enclosed P.O. for 5s. for the renewal of my membership in the above Association.

With best wishes for it's continual helpfulness to all its members, great and small.

I should like also to express the same sentiments towards "Eggs," of which I am a continual reader.

I remain, yours sincerely,

(Signed) GEO. H. WARD.

Utility Duck Club Notes.

By **HUGH B. CARRINGTON.**

There are several topics which may be touched on with advantage in my December notes, but before starting on them I wish to say one or two things, which will, I hope, catch the eye of members and others.

First of all, if any members who have not paid their subscriptions for the current year happen to read their "Eggs" thoroughly without missing these lines, may I ask them to do so now. I am sure they will, if it is realised what a horrid business it is for a secretary to have continually to send out reminders. People do so often forget, I usually do so myself, that my sympathies are with them, though in this particular case, it is nothing to the sympathy which I expend upon myself.

Secondly, please note that the U.D.C. will again have a stand at the Grand International Show, Olympia, on December 9th, 10th, and 11th. It is No. 3, and may easily be found by turning to the left after coming in at the main entrance, and making for the stands on the left, which face the centre of the hall. It is hoped to have one or two original exhibits, and, in any case, members of the Council will be present each day to talk ducks, and to help those who wish to start keeping them, or have just begun to do so. Should there be any members or others who particularly wish to see me personally, it may save them trouble to say that I do not expect to be at Olympia on Wednesday owing to the claims of a local Fat Stock Show. And now to business.

At this season of the year one of the most important things for the duck-keeper is to get his birds to lay well. Fortunately, nothing like the number of complaints have come along this year as were received at the same season in 1923.

That good birds can lay and lay very wonderfully through these dark winter months is, of course, well-known, but everybody's birds do not do it. The secret is not only in the feeding, but in the management, and, of course, the breeding. Only to-day a letter came to me from one of the first friends I ever made in the duck world to say that her birds were doing splendidly —17 pullet ducks, more correctly called ducklets, I believe, "are laying 17 eggs per day, or as nearly as makes no odds." Unfortunately this particular lady is a very modest person, or else she does not recognise her own merits, for she cannot be induced to say how it is done.

The answer really can be given in two words, "good management." Of course, she feeds right and breeds right, but good management is the basis of her success. Good management is not easy to define, but one of the chief ingredients is tameness, another is that the birds should in no way be disturbed. Let me give an illustration of this. During the past week, by an unfortunate chance, it proved necessary to bring a bunch of young and skittish Guernsey heifers on to one of my fields, where a flock of ducks is running, and on two sides of which are several pens of young birds. The unusual disturbance caused by the rackety behaviour of these heifers has caused a serious set-back to the egg output. That this is the true reason, I am convinced, because, in other pens well away from this particular field, laying proceeded as usual.

Therefore, if a drop in output occurs, which cannot reasonably be accounted for in other ways, it is well to look out for some unusual happening which may be the source of the trouble; when, if possible, remove it at once. Unfortunately the confounded heifers cannot be moved at present, so either the ducks will have to get used to them, or the egg basket will have to suffer.

One word about feeding. Do not forget the greenstuff. Ducks will be quite happy eating it raw in the shape of cabbage leaves, kale, or any similar vegetable. The U.D.C. publishes plenty of literature on feeding, so it is hardly necessary for me to talk about it at length here.

The next and last point there will be room for this month is the breeding pens. Everybody who intends to do any breeding in the coming season, whether purely for their own stock, or for the sale of sittings, ought to be thinking about how to select the breeding stock.

First, there is the question of type. Personally, exhibition points do not worry me one jot, but, on the other hand, dish billed, coarse, badly-marked birds are painful to behold, and, therefore, the type of bird picked to produce the future stock must conform to a reasonable standard.

Next there is the all-important question of stamina to consider. It cannot be expected that a duck or a drake, which is below the normal size and weight for its breed, will produce the class of stock which is desired, and any such birds should be excluded from the pens. Again, any bird which has ever ailed in any way—unless, of course, through minor injuries due to accident from which it has completely recovered—should not be chosen.

Finally, and most important, the type of eggs laid by the future breeding stock should be carefully studied. No matter how many eggs a bird may have laid, it is not a bit of use to breed from her unless she has been a consistent layer of good-sized, well-shaped, and well-textured eggs. This kind of thing has been said over and over again, but it cannot be insisted upon too frequently.

If only all these points were rigorously studied there would be no fear of degeneration in the ducks of the future, and our favourite breeds would run no risk of being ruined, as some of the popular breeds of poultry have been.

Let it always be remembered that we humans have taken upon us a task which nature by instinct can do without effort, and that it behoves us to follow her teachings in the art of selection as nearly as lies in our power.

Address Missing.—A Mrs. Felix Calvert joined the Club at the recent Dairy Show, but, unfortunately, her address has been mislaid. If anyone can furnish me with this I should be greatly obliged.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Major C. G. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Major Saunders.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Major Saunders).

ALL questions should be addressed to the Editor. Major Saunders does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

K. L. (Derby). I do not consider the percentage of pullets which are laying is sufficiently high for this season of the year. There is nothing wrong with the feeding. It is natural, I suppose, for everyone to turn to the feeding when there is a shortage of eggs, but there are many other things which may cause this. I would suggest that you feed fairly heavily with grain at night, preferably of kibbled maize. Give them as much as they will pick up. Much of the loss of egg production during these short days is due to the fact that the birds spend such long hours on the perch without being sufficiently nourished.

F. M. W. (Harleston). The "enclosed sample" was not enclosed, so I am afraid that I cannot express an opinion. Nearly everyone has the same experience as yourself of pullets coming into lay a month later this year than last, even when they were reared under exactly the same conditions. I cannot tell you whether the sample of limestone grit is a good one as I have not seen it. A good sample is grey in colour. They will not supply all the calcium salts that are needed, and if you think there is a shortage it will be wise to give bone meal in the mash, as indicated in last week's "Eggs." I should be inclined to use No. 7 to breed your cockerels from. She was a little slow in maturing, but her winter record is excellent and the size of eggs is excellent. Although No. 19 has a good record she was very late in coming into lay, and for that reason I should not like to use her sons. You could take the record from the first egg until she moults, or for twelve months from the first egg. I am glad you find "Eggs" so helpful.

T. D. S. (Broadstone). I can only say approximately the quantity of mash you should give your fowls a day. Roughly, I should give 2½ ozs. weighed when dry, but you must learn to observe and understand that you cannot feed birds by weight, as their consumption of food will vary considerably at different times of the year, as to whether they are in production or not. You may roughly say that a bird approximately requires 4 ounces of food per day. Give the grain food in the litter. If they do not pick it all up, you must give less. In fact, you will have to be guided by the birds' appetites, and the heavier their production the heavier will be their appetites. I am very glad to have your appreciation of "Eggs."

M. S. (Yorkshire). The samples you send are of fair average quality, except the fish meal, which contains an excess of oil, and the middlings and bran. The middlings contain too much bran. It would considerably help you if you could get someone in to handle your birds and ascertain their bodily condition. As far as the actual feeding is concerned this seems to be quite all right, but I am rather inclined to think you are over-feeding them now, and I should discontinue the boiled oats in the middle of the day. Are there any other conditions outside the feeding which are likely to upset the birds? Are they well housed, and are you quite sure they are free from insect pests, such as red mite? There are many causes which may prevent a bird from laying beside the feeding, and in your case I cannot make any useful suggestions in that respect.

J. L. W. (Pickering). In reply to your letter. I am of opinion that in the "Cyprus" incubator you will get sufficient moisture without adding, as you suggest, as the ventilation is on very different lines from that of the other machines to which you refer. In the latter case I think what you suggest should be very helpful. In answer to your question as to the mating of the White Leghorn cockerel to his own daughters, I am really always against such a mating. It is a matter of very careful individual selection. Should there be any weakness on either side, recollect this will be intensified in the progeny. There is absolutely nothing to be gained by it from what you tell me, and there is always great risk.

J. B. (Godalming). I am sorry I cannot tell you why your birds do not eat the cabbage. Possibly they do not need it. Try cutting it up very finely and mixing a little with the mash. You may be sure that if they will not eat the cabbage they are not seriously in need of it. Are they finding anything in the runs? If there is plenty of grass possibly they do not want the cabbage.

(Continued at Foot of Column on Next Page).

Poultry-keeping for Suburban Dwellers.

The fourth of the series of poultry lectures under the auspices of the Manchester Agricultural Committee was held on Friday evening, November 21st, 1924, at the Princess Road Schools, Moss Side, Councillor J. Mathewson Watson presiding.

In welcoming the lecturer, the chairman said he knew very little about the subject, but his interest and enthusiasm, like his efforts on behalf of the Children's Treat Fund, was evident. His summing up of the lecture was very highly appreciated, for at least the chairman had profited, and the meeting more impressed, especially by his closing words, "It is the human touch, less selfishness, then the world itself would be better."

Mr. William Hamnett, of Blackpool, is one whom it is worth travelling a distance to listen to, and his subject to-night again proved he was capable of disseminating his practical knowledge for the benefit of Manchester's citizens.

Why suburban people should keep a few fowls, so being able to produce as much food as they possibly can, thereby retaining monies within our own country. Last year £17,000,000 was spent outside our borders on poultry products. To-day's slogan should be PRODUCE and EAT MORE ENGLISH NEW LAID EGGS.

The poultry industry is a valuable one, and the suburban dweller can help with his few; to-morrow he may be a small-holder. Forget not the value of poultry products exceeds the wheat and oat crops grown within the British Isles.

It is not the wisest plan to keep poultry purely as a hobby, but to make the hobby remunerative, so that the aim is to get all we possibly can out of the fowls, a gain to ourselves and a usefulness to the country—the best results being only possible with care and attention, and our fowls knowing we are their friends. Overcrowding is bad, and particularly so in confined spaces, such as the suburban dweller has at his disposal. In fact, if a pen will hold ten birds it is safer to keep eight, and the results will be far better. Feeding with the suburban dweller is somewhat different to the poultry farmer, seeing that his own and the friendly neighbours' housescraps can be used; but to keep to the balanced ratio, it is necessary to use meals which will counterbalance the housescraps, such as the starchy substance of the potato and so on. Light-coloured birds are not very suitable to Manchester, they soon become dirty and not pleasing to the eye, therefore the darker coloured varieties are more suitable for such conditions. In choice of breed the lights are the best, the Black Leghorn is an ideal breed to keep.

It is not a good proposition to keep the dual-purpose fowl if the aim is egg production, for we cannot have table fowls and the maximum of eggs at the same time. Again, in the heavier breeds we have broodiness, which is a further drawback to the suburban keeper. Poultry houses, whether in the garden or on the allotment, must be light, for a dark, dismal house is no inducement to egg-laying. Ventilation is of the greatest importance, but avoid draughts, which result in colds, roup, etc. Disease germs do not favour sunlight, therefore remember the house should be in such a position whereby the maximum amount of sunlight is obtained within.

Wherever possible it is advisable to have a run attached to the house, but this must be covered, for open runs in small spaces are not to be recommended, often becoming water-logged and cesspools. Although difficult to over-feed a laying pullet fed upon foods of the right nature, care must be taken not to over-feed the stock. Laxatives are not good to reduce the weight of over-fat birds, but rather give extra work by more and deeper litter to scratch in, reducing the fat in a more natural way, the organs of the bird being kept in a healthy condition by this means.

Pullets must be bred under ideal conditions to do the work expected and purchased by early September, taking about a month for them to comfortably settle in their quarters. It is practically as economical for the suburban dweller to kill off at the moult, clean up, disinfect, etc., and purchase fresh stock than to go through the moult for a second year. A general clean up is a safeguard against disease, then there is the cost of keep without eggs through the moult, for if the birds lay through the greater part of the moult they will rest after and probably a longer time.

Many questions and a hearty vote of thanks to the lecturer brought a well-spent evening to a close.

W. G.

Menadews, St. Clements, Truro.

Dear Sir.—"Eggs" is packed full of information from cover to cover, and contains more practical information than any two contemporary journals.

Thanking you, yours faithfully,

(Signed) L. CHOAK.

ANSWERS TO QUERIES—Continued.

H. L. S. (Ashdon). The pullet appears to be suffering from sour crop. What is the cause I cannot definitely state. Often it is due to some indigestible matter, and frequently the food if fed in an excessive sloppy condition. Hold the head upside down and gently knead the crop, the liquid will come away through the nostrils. Then get some carbonate of soda, mix one part to eight of water, give the birds two teaspoonfuls of this, with light feeding and plenty of green food. The whole trouble is due to the feeding, and as you do not describe this to me I cannot help you further. Of course, there is a possibility of the pullet having picked up some contaminating matter in the run.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

THE HATCHABLE EGG.

We shall soon be starting incubating, and that hardy old annual, the dead-in-shell problem, will certainly rear its hoary head. I am not going to discuss that now; in fact I have come to the conclusion there is a deal more to be done by feeding and breeding for the hatchable egg than there is in discussing questions of temperature, moisture, etc. That fact was forced on me, after examining some 2,000 eggs which our members were pleased to send me last year for an explanation as to causes of failure to hatch. The real point I want to discuss now is the storing of eggs intended for incubation. Some of our breeders would have fewer complaints, and I am quite sure we should have healthier and more vigorous chicks, if more attention were paid to this. I would urge it, too, as one step in the direction of combating disease. I have been on large commercial egg farms, and seen hundreds of eggs packed one on top of the other, exposed to a varying temperature, which may be anything with the mid-day sun on them from 75 degrees to just over freezing point at night. That is an extreme case, but it occurred. Then, of course, there is the question of evaporation under such conditions. It will save me some correspondence if I answer that inevitable question as to how long an egg can be kept for incubation by saying that is not the point. Every day an egg is kept after it is laid, it deteriorates, and there is less chance of its hatching a good chick, or even of hatching at all. I have known eggs to hatch which have been laid for a month, but the chicks were of not much account. A number of eggs sent me last year were not hatchable eggs. If the senders had had more experience they would have known this, they were abnormally small or abnormally large, thin-shelled or misshapen. It is sheer waste of time or money to incubate such eggs.

But to come to the storage question, and to repeat what has so often been said before. The shell is porous. This permits the intake of oxygen so necessary to the healthy development of the chick, and probably in direct proportion, the escape of the carbon dioxide, exhaled by the growing embryo. The two membranes are kept in a moist state by the moisture within the egg. If they are kept moist they will allow the intake and escape of two gases mentioned above, but if there is too much evaporation of moisture from the egg they become dry and hard, and impermeable to these gases. In examining the unhatched eggs in an incubator, one often finds that in some of them there is a fully-developed chick, very small and very dry, with the membrane shrunken and dry. This indicates a stale egg. On the other hand, you may find others in which you have a chick completely filling the shell, and very moist. In this latter case the trouble is due to the stagnant atmosphere in the incubator, particularly during the last few days of incubation. However, it is the storage we are considering, and not incubator conditions. We can understand then why the stale egg, with the dry membranes, is a bad hatcher, and why if it does hatch the chick is weakly, and why I have said that it would be one step towards combating disease if we paid a little more attention to storage of eggs intended for incubation. The best way to store eggs is on their sides, in bran, with a room temperature round about 50 degrees, Fahr. Failing this, wrap them in newspaper. They do not require airing. You will be saved a lot of trouble in studying moisture problems and temperature if you store your eggs properly, and see that your incubator is properly ventilated.

CHICKEN POX.

I have received the following letter from Mrs. Beadon Bryant, writing from South Africa. She says:—

> "Dear Mr. Newman,—I have discovered what was the matter with the Wyandottes, who had warts on their faces and bad eyes that I thought might have been gout, and wrote to you about. I read the article in 'Eggs,' 'Studies on Nutritional Diseases of Poultry caused by Vitamin 'A' Deficiency,' by Mr. Beach, and that has solved my difficulty. I gave them greens and more kibbled maize in their grain feed, and now the flock is quite free from any sign of disease.
>
> The winter drought had made us very short of green food, so I had increased the Lucerne meal in their dry mash (your formula), but evidently it was not sufficient, and in future I must see that enough green food is grown. We have only been on the farm 19 months, and it was all bare veldt when we arrived, so we have not done badly, especially as there are beetles for every kind of vegetable that is planted, and you are lucky if 25 per cent. of the plants are allowed to grow up.
>
> I found carbolic vaseline cured the warts and swellings, and I put sulphate of iron in their drinking water as a tonic, and, again, thanks to 'Eggs,' my small flock is quite free from any sign of disease.
>
> I am looking forward to the continuation of that article by this mail."
>
> Sincerely yours,
>
> M. BEADON BRYANT.

During my recent visit to the Keighley Branch one of the members came up and informed me that he had had a bad outbreak of what he took to be Diphtheritic Roup among his flock. After trying various treatments without effect he turned the birds out into a field of cabbage, and, much to his astonishment, this effected a complete cure. I leave the matter at that, and now perhaps some of our members and readers can tell us what is Roup and what is Chicken Pox?

9, Rockvad Terrace, Dumbarton.

Dear Sirs,—Please find enclosed P.O. for 1s. 3d., being price of the book "One Man Poultry Farming." I must mention, in writing, my appreciation of your paper, "Eggs." I think it has no equal in poultry journalism. Hoping you can supply book, and wishing you every success.

I am, Sir, yours truly,

(Signed) H. P. REYNOLDS.

Correspondence.

VENTILATION.

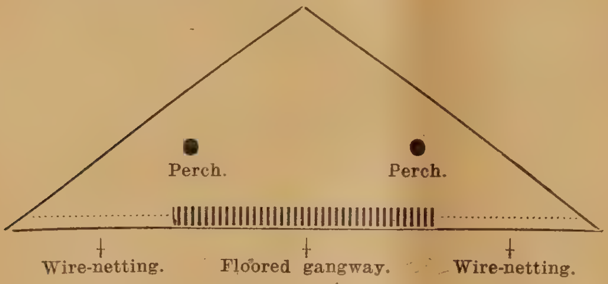
To the Editor of "Eggs."

Dear Sir,—Surely "Eggs" grows in value? I have in mind particularly Mr. Somerville's article on Ventilation. Here is sound practice and theory that is most useful.

The only objection, or rather drawback, to the "Apex" shape that I can see is that water—i.e., rain—catching is not easy. I should, however, like to ask him two questions :—

(1) What floor space does Mr. S. consider is required per bird in the "Apex" house? I usually allow 4 square feet, but with "Apex" less should do.

(2) What would he think of a wire-netting floor for hens as for ducks, but with central boarding passage for operations, and wide enough for droppings boards? Thus:—



Egg boxes accessible for eggs from outside.

It occurs to me that such a house will always have

(a) Dry floor.
(b) Clean floor.
(c) With wheat straw or netting, no draught but warmed air passing upwards by filtration through the straw.

Wishing continued success to "Eggs" and the Editor.

Yours truly,
C. HESKETH (Major).

VENTILATION.

To the Editor of "Eggs."

Dear Sir,—I was very interested in Mr. Somerville's articles on Ventilation, and I am of the opinion that it is requiring the attention of every practical poultry-keeper.

I think we have all got a good general knowledge of feeding. It is to the housing we are needing to turn our attention.

I think Mr. Somerville's "Apex" house very good, but I am afraid the floor ventilators will cause a draught which will be injurious to the birds when they are on the floor.

I was very interested in a house I saw the other day. It was made of rebated weatherboarding, ¾ in. thick; it was 12 ft. long by 8 ft. wide, and 8 ft. from floor to apex. There are three windows about one foot from floor, one at each side, and the other at the end; about 3 ft. up there is a window at each end 18 in.square, but are not fixtures like the above, as they fall in 9 in.—the louvre type.

The dropping boards are at each side, the nests are underneath—same at each end, near the door. About 3 ft. from end at the side there is a space 6 in. wide where the air is let down to within 9 in. of the floor through an air tube. At the opposite side you have the same, only at the other end.

As this house is only on trial, I can't say to its success, so I trust some of your readers in "Eggs" will improve on same.

Yours faithfully,
"SCOTTIE."

I regret that the drawings sent by our correspondent are so indistinct that is is impossible to reproduce them.—(Editor.)

THE OLYMPIA SHOW.

The great Show at Olympia begins on Tuesday, 9th December. I understand there is a record number of entries this year.

The S.P.B.A. Stand will be in its usual position, and we shall be very pleased to see all members who come up for the Show.

Members of the Council will be in attendance on all three days of the Show to give what advice and assistance they can.

One of the great advantages of the Olympia Show is that you get such a perfect view of the birds.

It will be the last great Show held in the South this year.

TESTIMONIALS.

Ladyfield, Invergowrie.

Dear Sirs,—I have your letter reminding members of closing of financial year, also requesting support for N.P.C. Therefore please find enclosed P.O. 10s. 6d.—5s. subscription to S.P.B.A., and 5s. 6d. for N.P.C., or to be divided as you think fitting. Trusting your request meets with success well earned. Words cannot express my appreciation of your paper and work of the Society in general.

Yours faithfully,
(Signed) D. PETRIE.

East View, Irchester, Northants.

Dear Sir,—I wish to take this opportunity to express my very great appreciation of your paper "Eggs," which has been and is a very great help to me. I often say to my friends, "When in doubt on poultry matters turn to 'Eggs.'"

Yours faithfully,
(Signed) HUBERT J. FROST.

BACILLARY WHITE DIARRHOEA.

LIABILITY OF BREEDERS—IMPORTANT ACTION.

A case of unusual importance to poultry breeders was heard before his Honour, Judge Herbert Smith, K.C., at the King's Lynn County Court last week. A claim of £95 18s. was made by Major Thorne, of Heacham, against Messrs. Chivers, of Histon, in respect of two lots of Light Sussex eggs supplied by defendants. The plaintiff alleged that these eggs were infected with Bacillus Pullorum, that the chicks hatched had died, and had infected his stock, and there was a breach of implied warrantry. Defendants denied liability, or, if so, the liability was complied with, and the eggs were of good hatchable quality.

Mr. Raikes, K.C., and Sir William Bagge, instructed by Messrs. Norgate and Hood, were for the plaintiffs, and Mr. Hurst, K.C., and Mr. Eden, instructed by Messrs. Rollaston and Clift, of Birmingham, were for defendants.

Mr. Raikes, in opening the case for the plaintiffs, said it was one of considerable importance. Defendant had supplied two lots of two hundred eggs for hatching, the chicks from these eggs had died and infected others in the incubator with a disease known as Bacillary White Diarrhoea. The claim of £95 18s. was made in respect to a breach of implied warrantry under the Sale of Goods Act. The eggs were not fit for hatching, and were not of merchantable quality. Plaintiff kept two breeds, White Leghorns and Rhode Island Reds. He approached Messrs. Chivers for day-old Light Sussex chicks on the advice of Mr. C. A. Flatt, of the Ministry of Agriculture. These they were unable to supply, and eventually he ordered the eggs of which complaint was made.

The eggs were placed in a mammoth incubator with sixteen compartments. They were not placed in separate compartments, eggs from plaintiff's own farm were placed with them, except in one compartment, where only eggs from defendants were placed. The first sign of there being anything wrong occurred with the Light Sussex. These began to die within one or two days after being placed in the brooder, the same thing happened to other chicks which had been sent to customers, and this only ocurred with chicks hatched from eggs which had been in contact with the Light Sussex eggs purchased from defendants. Plaintiff took thirteen dead chicks out of the brooder to the Ministry of Agriculture's Laboratory at Addlestone. These were declared to have died from B.W.D. Counsel proceeded to say that a "carrier" hen may lay eggs which are infected with the Bacillus, and again may lay eggs which are entirely free from it. One hundred and seventy-three chicks had been sent away to customers which had not been in contact, and there had been no complaints. With regard to the Light Sussex hatched, 37 were kept in a separate brooder, all except five died within twelve days, these were sent to Addlestone, and again the report was B.W.D. Later he sent four eggs to Addlestone, three of these were found free from the Bacillus Pullorum, but the other, an infertile egg, was found to be infected. His own eggs, which had been wiped over with methylated spirit after being in contact with the Sussex, chicks hatched from them died after a fortnight; these were sent to Addlestone, and again B.W.D. was diagnosed. The disease probably took longer to break out because the action of the methylated spirit checked infection. His Honour: "Is it suggested that infection can be passed from one egg to another?" Counsel: "That suggestion has been made."

Major Thorne had never had a case on the farm since the destruction of the eggs and chicks as advised by Addlestone, and the disinfection of incubators and brooders. When disease was present, there were small eggs, infertility and a high percentage of dead-in-shell. It was not suggested that Messrs. Chivers had acted in bad faith. They had treated this as an isolated case, but another customer had had a similar experience. The National Poultry Council had interested itself in the matter, and he should question its representative as to why and whether they expected a charter of immunity for breeders who were members. Major Thorne had visited Messrs. Chivers' farm, and was satisfied with the stock he saw there.

The plaintiff then went into the witness box, and was asked by counsel for the defence if he accepted the statement that he (the plaintiff) had never had B.W.D. on his farm, would he be prepared to accept the statement of Messrs. Chivers that they had never had it on theirs? Witness: "I cannot say that, because I have had these infected eggs from them." He admitted that it was an extraordinary thing that the outbreak should occur on his farm, and that Messrs. Chivers should be free from it.

The plaintiff was asked if he knew that the Bacillus Pullorum was of very slow growth? He replied that he was not a scientist. He was then asked if moisture could get in and out of the egg, why could not micro-organisms get in?

His Honour: Are not we going too far? The plaintiff is not a scientist.

The counsel's next questions were as to visitors to the farm, and to the possibility of their carrying infection. Plaintiff said there were occasionally visitors, but there was no possibility of their carrying infection to the incubator room, as only he and his wife were allowed to enter it. He attached importance to the recommendation of Mr. C. A. Flatt and to his advice. He had hatched 360 R.I. Reds from 600 eggs incubated.

The Counsel: If this had been the record of Messrs. Chivers' birds, you would have thought it very bad?—Witness: Yes.

His Honour: Have you ever had a hatch as bad as 60 per cent?—Witness: Yes.

Counsel put the case very strongly that Messrs. Chivers had never had B.W.D. on their farm, and asked if he recognised that there were many ways in which the disease could be contracted.

The Judge told plaintiff it was a most extraordinary thing that he should have this disease on his farm from eggs, purchased from Messrs. Chivers, which he asserted was contracted from eggs purchased from Messrs. Chivers, while the defendants had no disease on their farm.

Plaintiff said he had no B.W.D. on his farm until he had the eggs from defendants, and therefore he could only conclude that they had B.W.D. on their farm.

The Judge said that was only an inference, the point was for him to decide.

Mr. Raikes asked plaintiff if it was not a curious thing that if all the means of infection indicated by his learned friend had been possible, that none of the chicks were infected except those from eggs which were in contact with Messrs. Chivers' or hatched from them? Plaintiff agreed.

Plaintiff's counsel enquired if his learned friend was going to dispute the fact that the chicks died from B.W.D.?

Defendant's counsel said, in reply, that he should dispute that until it was proved.

Defendant's incubator results were then put in.

Counsel said he did so because his learned friend pressed the point of his 60 per cent. hatch as a fair one.

The defendant's hatchability was as low, in one case, as 38 per cent., but that was acknowledged to be in the early months of the year. The average was 54 per cent.

Miss Mills stated that she had ordered 100 R.I. Red chicks from Major Thorne. She wrote acknowledging and sent cheque, and thanking him for sending such nice chicks. Major Thorne advised her that 75 were from one section of the incubator and 25 from another. She took 25 out of the 75 and put them with the other 25, making two fifties. She had very heavy casualties with the mixed lot, but in the other brooder had none whatever. Acting on instructions from Major Thorne she killed and burnt all that had died in that brooder.

Similar evidence was given by Mr. W. Harden.

Dr. Ewing stated that he ordered 180 R.I. Red chicks from Major Thorne to be delivered in two lots. They did perfectly well—there were no casualties.

Gordon Calthorpe, a pupil of Major Thorne's, stated that he examined some of the Light Sussex eggs which had not hatched to see how many were infertile. He examined 37—19 were infertile, and 18 dead-in-shell; 100 altogether had not hatched.

Witness frequently referred to a paper when giving evidence. When asked why he did so, he said that they were notes which he had prepared ten days ago. When asked whether he had seen eggs placed in an incubator, he referred again to this paper, which he subsequently admitted were proofs of his evidence, and had been prepared for him by Major Thorne.

His Honour said that the proof was simply telling witness what to say. It was Major Thorne's evidence, and not his.

He admitted that he had been to the incubator house and stoked and turned the eggs. He had heard Major Thorne say that he and his wife were the only people who were ever in the incubator house.

Counsel, for plaintiff, referred to the evidence of Major Thorne in reference to the visitors to the incubator house, and asked if he might be re-called to explain. Mr. Raikes, K.C. strongly objected, and His Honour upheld the objection, the witness must stand by his sworn evidence.

Mr. Kiddman said that he had 24 chicks. He said that these began to die on the third day without warning. He had found chicks dead which had been apparently healthy when he had seen them before.

Mr. Reynolds gave evidence that he had bought 100 Light Sussex eggs from Messrs. Chivers on March 29th. He had 63 chicks, put them in a new house and new brooder, and 37 died. In correspondence he mentioned his loss to Messrs. Chivers as 80 chicks. When asked to explain, he said he counted those which had not hatched. He informed Messrs. Chivers that he had placed the matter in the hands of the National Farmers' Union, and demanded either 40 pullets in September or a cheque for £20. He had told defendants that he had written to three Poultry Journals, and was awaiting their reply. Pressed to explain he admitted that he had not done so, and that he had tried to bluff. What he had written was not true.

Counsel: Then you are not very particular as to telling the truth? Witness repeated that he had tried to bluff.

His Honor: Come, come, Mr. Reynolds, you are an intelligent man, and the evidence you have given can only be characterised in one way.

Mr. G. Atkinson, M.R.C.V.S., Ministry of Agriculture, said that he examined chicks for Major Thorne, and gave a certificate that thirteen chicks had died from B.W.D. In each case he gave Thorne certain advice with regard to the second hatch of eggs. He received five chicks from him on 3rd April, and certified deaths were due to B.W.D. He received, at the same time, four eggs which were subjected to a bacteriological examination. The Bacillus Pullorum was recovered from the infertile egg, and the others were negative. He received four chicks from Mr. Reynolds, and certified them as dying from B.W.D.

Asked whether a post-mortem examination or a bacteriological examination was reliable, he replied that the post-mortem was not reliable. Chicks may show lesions when suffering from the disease, but chicks may have the disease, and not show lesions. There was only one way in which the Bacillus Pullorum could get into the yolk of an egg, and that was through the ovary of the hen; it would not get through the shell from the inside. The proportion of deaths would depend on the resistant power of the chicks. If they were weakened by chill and other causes the mortality would be higher. He agreed that it was very strange and unaccountable if there was no outbreak on the farm which had supplied the chicks which died from B.W.D. He would suspect infection from other sources.

Questioned as to the time it would take to make a complete bacteriological examination, witness said, three days.

Counsel for the defendants questioned him very closely as to the completeness of the investigation, and the reply was that it was complete enough to satisfy him.

His Honour asked counsel if he was questioning this completeness, as he was opening a very grave charge against a Government Department.

Counsel said that he was going to question it very closely.

Witness described the method employed in the bacteriological examination of an egg.

He agreed that the bacillus of fowl typhoid was very similar and difficult to distinguish from the Bacillus Pullorum.

There being no possibility of the case being finished that day, it was adjourned until 1st January.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMEBERSHIP.

James, Mrs. Arthur, "Merifield," Woodmancote, Hants.
Key, Jesse James, Mount Pleasant, Loughton, Bletchley, Bucks.
Perromat, C. C., La Sfinge, Azzano, Lago-di-Como, Italy.
Hartley, R., 348, Longmoor Lane, Aintree, Liverpool.
Bourman Raymond, Butts Ash P. Farm, Hythe, near Southampton.
Fenton, Hubert A., Glentramman Abbey, Fozayre, Ramsey, I.O.M.
Glanvill, Lt. A. E., M.C., Ullenhall, near Henley-in-Arden.
Okeden, Miss V. Parry, O.B.E., Pilford, Wimborne, Dorset.
Lucas, Lt. W. G., Beech Place, Stowmarket.
Boyd, G., 19, Great Enton, Witley, Surrey.
Fee, Henry Samuel, Newtown, S. Hayling, Hants.
Smith, Mrs. M. K. S., Monkton Court, Minster, Thanet.
Scott, Mrs. E. M., Southgate, Castlebellingham, Co. Louth.
Russell, G. H., 151, Harlaxton Road, Grantham, Lincs.
Chesman, Chas. W., Broadway P. Farm, Brighlington, Bradford, Yorks.
Boustred, Mrs. W. W., "Blondin," Praze, Cornwall.
Desmond, Stanley Jas., 772, Old Kent Road, London, S.E.15.
Utton, A. Pierce, The Hurst P. Farm, High Hurstwood, Uckfield, Sussex.
Webb, H. J. F., Hazel Mount P. Farm, Carterton, Clanfield, Oxon.
Smith, Chas. Clifford, Staplefield P. Farm, Petham, Canterbury.
Bellwood, Chas. Wm., 59, Healey Road, Ossett, Yorks.
Henfrey, Percy, Outram Street, Sutton-in-Ashfield, Notts.

LONDON MARKET ADVICE TABLE.

DECEMBER, 1924.

By A. V. CLARKSON.

During this month every producer should market all the produce that he can, knowing that the Xmas markets are the most remunerative that he can find at this time of the year.

The most important part of marketing is to comply with the requirements of the particular market to which the produce is sent. Of course, the biggest item on the poultry markets at Xmas. is TURKEYS, and below will be found detailed advice.

Producers must bear in mind that the poultry market takes on a sort of "lull before the storm" for the fortnight immediately preceeding the Xmas. markets, so that it is really unwise to market your best produce between the 1st and 13th of December.

It must be thoroughly understood that at Xmas. time all salesmen are working at extreme pressure, and for this reason the poultry must be sent to the market killed and clean plucked, as the salesmen have no opportunity for doing this, and if the sender should send his birds alive, they will have to be sold alive, and for this reason they will naturally not realise a very good price.

CHICKEN.

The demand for chicken at Xmas. is mostly confined to the large-sized bird, scaling at least 4½lbs. It must be understood that if chicken are forward, and have thrown their spurs, even though they may be of very good size, they will not realise the price that really soft young chicken of the same size will do.

DUCKLING.

There is always a good demand on the Xmas. market for genuine white duckling scaling 4½lbs. or over, but it is not wise to send the small or coloured duckling to the London Market.

GEESE.

With regard to Geese, it is rather difficult to explain the exact state of the Goose Market for Xmas., but if one is giving advice, one has to be perfectly frank, and to do this I must warn members of the S.P.B.A. that the taste for geese has comparatively gone out of fashion, and. consequently, there is a very small demand anticipated. and this demand is, to a great extent, influenced by the price of turkeys, i.e.. if turkeys are short or dear, the public fall back upon geese, because of the cheaper price per pound (although relatively a goose costs more in actual flesh). In addition to the above fact, it must be pointed out that ordinary runner gesee are practically unsaleable on the London Market. because they pick out very plain and hard, and the only geese which will sell at all are those which have been specially pen-fed. and anyone who has a supply of geese should put out all their endeavours to dispose of them locally, rather than risk sending them to the London Market, only to meet a very bad demand.

TURKEYS.

Senders of Turkeys to the London Market should arrange for the delivery of their birds into the market between the 13th and the 18th of December. Of course, should the weather be exceedingly warm for the time of the year, the sender must use his own discretion, and arrange for the delivery of his birds on the 18th or 19th, rather than on the 13th.

The manner in which the birds should be marketed was shown and explained in every detail in "Eggs" the week before last, and must be rigidly adhered to if the sender wishes to obtain the utmost benefits from the market.

Small producers, who live in outlying districts, and have no local or retail demand for their produce, are, to a great extent, under the impression that the London Market has no time for the small sender. This idea is absolutely wrong, and, providing that the birds are of real good quality, and extra attention is given to the dressing and packing, the small sender can obtain a greater percentage of profit for his produce than at any other time of the year, on exactly the same basis as is done with other commodities at this festive season.

It must be thoroughly understood, however, that no matter how much preparation or decoration is carried out, if the quality of the birds is inferior, the realisation price will be likewise.

With regard to the question of realisation prices, producers are warned to ignore the scraps of information which appear more or less daily in the general newspapers. The bulk of these articles are written by people without the slightest technical knowledge, and who have no liability regarding the statements that they make.

There is absolutely no necessity for the producer to act in the dark. Any genuine salesman is only too willing to reply by return and state the price existing at the time of wiring, and surely it must be worth a shilling telegram for a man to find out the true state of the market, rather than send his produce, and base his calculations on some article which is not authentic.

The realisation price of Turkeys is governed by the ordinary commercial factor of "Supply and Demand."

This table would not be complete without some reference to the debacle on the actual market last year. No doubt most members have some knowledge of the great slump which took place, whereby small consigners lost very heavily in proportion to the amount sent to the market. This slump was caused in the following manner. An impression was created that a shortage existed before any actual market took place, and buyers in their anxiety to secure a few birds, purchased (as they thought) all the available Turkeys before the Xmas. market opened.

(Continued at Foot of Next Column.)

The report of the shortage being a false one, and genuine buyers having secured themselves beforehand, the consequence was that when the bulk of the stuff arrived on the actual market there was a plentiful supply of turkeys, but no purchasers, thereby causing a slump.

This year the exact opposite has occurred. Buyers have realise that to purchase on false information before the market opens is disastrous, and are now content to wait and buy their goods on the London Market. The consequence is that the extra demand is certain to affect anything for disposal on the London Markets, and therefore, cause prices to be maintained.

From all sources information is to hand that the quantity of foreign birds likely to be marketed in London this year is above the average, with the natural result that prices will be fairly reasonable, but even so, all people connected with the poultry business are aware that, no matter how plentiful foreign birds may be, really specially home-bred stuff (ESPECIALLY BIRDS RANGING FROM 16lbs. to 20lbs. and over) can always withstand the onslaught of foreign competition, and, therefore by comparison, will realise their true worth.

SPECIAL INTERNATIONAL SHOW NUMBER.

Our next issue, December 10th, will be a special Olympia Show number. A great opportunity awaits you to ensure success in the coming season by commencing a series of advertisements in this issue, which will be on sale on all three days of the Show at the S.P.B.A. Stand, where many hundreds of extra copies will be sold.

The rates remain the same, viz., 6s. 6d. per single column inch. Special reductions for a series of 13, 26 and 52 insertions.

Please send your order at once, as we close for press First Post on Friday next, the 5th inst.

TESTIMONIALS.

"Sun Cottages," Burghfield Common, near Reading.

Dear Sir,—May I say that the previous S.P.B.A. pamphlets have proved of considerable help to me, and that "Eggs" is a weekly source of interest and enjoyment eagerly looked forward to. Wishing your Society increased membership and power in the forthcoming year (1925), and thanking you for excellent articles week by week.

I am, Sir, yours faithfully,
(Signed) H. E. VINER.

"Sundridge House," Marlborough Street,
Faringdon, Berks.

Dear Sir,—I feel I must write a word of appreciation regarding the valuable information received through "Eggs."

I have been using your feeding formulas from the Register, results being very satisfactory. Wishing the S.P.B.A. every success.

Believe me, yours respectfully,
(Signed) E. L. FOARD.

23, 8th Avenue, Bey Valley, Johannesburg.

Dear Sir,—Please receive my best thanks to you and the many contributors to your paper "Eggs" for the very valuable help received. I appreciate it and thank you.

Yours very respectfully,
(Signed) A. L. SUTHE.

Farfield Poultry Farm, Farsley, near Leeds.

Dear Sir,—I enclose P.O. 1s. 4½d. for your work, "Handling and Observation," and I hope I can appreciate it as much as I do you fine paper, "Eggs," which puts all other papers in the shade.

Yours sincerely.
(Signed) H. PROSTER.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING FRIDAY, NOVEMBER 28th, 1924.

GRAIN AND FEEDING STUFFS.—There is practically no change in the price of English wheat, parcels in fair condition selling at an average of about 12s. 7d. per cwt. Imported wheat has again fluctuated widely during the week, and although at the close a steadier tone was in evidence average prices over the week show a general reduction, No. 1 Manitoba being quoted at from 15s. 8d. to 16s. 2d. and No. 2 Hard Winter at from 14s. 3d. to 15s. 2d. per cwt. There is little movement in the barley market, although best malting samples find buyers. English oats are quiet and easier, blacks and greys ranging from 9s. to 10s. 6d. per cwt. at the various markets, while imported oats have fluctuated during the week, but on the whole show little change. Supplies of Indian grain attract attention at from 10s. 3d. to 10s. 6d. per cwt.

Demand for milling offals has fallen off, and middlings are cheaper at all markets, prices ranging from £9 7s. 6d. to £10 10s. per ton. Trade for oil cakes continues quiet, and price changes are slight, although in nearly all cases in favour of buyers.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s; Hull, £8 12s; Liverpool, £9; London, £8 7s. Broad Bran: Hull, £10 2s; London, £9. Middlings—Fine (Imported): London, £11 2s; Coarse (British): Bristol, £10 10s; Hull, £10 10s; Liverpool, £10; London, £9 7s. Pollards (Imported): Bristol, £9 2s; Hull, £8 10s; Liverpool, £8 17s; London, £9. Rice Bran: Bristol, £9 7s; Liverpool, £9 2s. MEAL.—Barley Meal: Bristol, £13; Hull, £13 10s; London, £13. Maize Meal: Bristol, £12 5s; Hull, £11 8s; Liverpool, £11 12s; London, £11 10s. Maize Meal (S. African): Liverpool, £11 7s. Maize Germ Meal: Bristol, £12 10s; Hull, £11 10s; London, £11 12s. Maize Gluten Feed: Bristol, £12 5s; London, £11 15s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 18s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £21.

EGGS AND DEAD POULTRY.

English eggs remain scarce, and the high prices are stated to be forcing buyers to purchase cheaper grades. Imported descriptions fully maintain late rates.

Week-end Prices—Eggs (per 120): British: 34s 0d, 32s 6d; Irish: 29s 0d, 27s 0d; Danish: 32s 0d, 29s 0d; Dutch: 34s 0d, 30s 0d; Russian: 17s 0d, 16s 0d; Belgian: 31s 0d, 29s 6d; Italian: 26s 0d, 23s 3d; Australian: 24s 6d, 24s 0d; South African: 23s 0d, 18s 9d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d, 1s 5d; Irish: 1s 3d, 1s 0d; Others: 1s 4d, 1s 2d. Ducks: 1s 2d, 11d. Geese: 1s 2d, 10d. Turkeys: 1s 10d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 3s 5d; Second, 3s 3d. Birmingham: First, 3s 7½d; Second, 3s 2½d. Bridgwater: First, 3s 9d; Second, 3s 8d. Carlisle: First, 3s 9d. Chelmsford: First, 3s 5½d; Second, 3s 3½d. Denbigh: First, 3s 9d; Second, 3s 6d. Derby: First, 3s. 8d. Dorchester: First, 3s 6d. Exeter: First, 3s 7d. Hereford: First, 3s 0d. Ipswich: First, 3s 6d; Second, 3s 3d. King's Lynn: First, 3s 6d; Second, 3s 0d. Lincoln: First, 3s 6d. Llandilo: First, 3s 4d. Montgomery: First, 3s 9d. Newport (Mon.): First, 3s 6d; Second, 3s 3d. Norwich: First, 3s 6d; Second, 3s 0d. Oswestry: First 3s 3d; Second, 3s 1d. Penzance: First, 3s 3d; Second, 3s 2d. St. Ives (Hunts): First, 3s 5½d; Second. 3s 3½d. Salisbury: First, 3s 5d; Second, 3s 3d. Shrewsbury: First, 3s 9d; Second, 3s 6d. Skipton: First, 3s 6d. Truro: First, 3s 2d. York: First, 3s 10d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 9d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 4d; Second, 1s 3d. Ipswich: First, 1s 8d; Second, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 0d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 3d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

*Per Head.

The Willows, Haydock.

Dear Sir,—I take "Eggs" weekly from my local newsagent, and out of the six papers I take it is the only one I can take and read from beginning to end.

Yours sincerely,

(Signed) A. PIMBLETT.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, December 3rd, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association

WEDNESDAY, DECEMBER 10th, 1924.

Editorial.

THE COMMERCIAL SIDE.

"Ex-Airman," in a very interesting article in which he appeals, for what he is pleased to call the "Uneducated Ex-Service Man," remarks that the fund for the National Poultry Institute was not supported as it should have been because many people thought that the money would have been better devoted—some of it at least, to strictly commercial problems.

While we may sympathise with this view to some extent, may we remind him that, indirectly, the Institute is bound to affect the commercial side, and many of the points he raises will be dealt with at Harper-Adams, where the commercial and practical side will be situated.

Let us deal with the items he enumerates:—

(1) Better control of the egg market. What is exactly meant by this is not quite clear. There can be no control of the egg market unless the whole industry is organised, and there are constant and regular supplies of reliable eggs. May we remind "Ex-Airman" that an attempt to improve matters in this respect failed, because of the lack of support accorded by those in whose interests the attempt was made.

(2) The S.P.B.A. has this matter under consideration; it is an exceedingly difficult problem, and the measure of success will depend entirely on the measure of support accorded the Council by members. We are not speaking so much of financial support, as the voluntary work which will be necessary for organisation.

(3) Surely this is as much a local as a national problem. It can only be due to the apathy of those engaged in poultry work in those districts. There must be some effort of self-help. One of the greatest reasons for so little being done is that so many of us are expecting others to do it for us; if co-operation is favoured, it only needs three or four to gather together to see what can be done—to call a meeting, appoint a committee, and make the necessary investigations. There is no difficulty in obtaining the necessary information.

(4) This really is a trivial matter, and does not materially affect the industry. Whether the controversy between Fancy and Utility can be called "futile bickering" we will express no opinion; there is much vain repetition, we agree, but out of the discussion some measure of agreement is possible.

(5) This will probably be undertaken by the National Poultry Institute, or at least we shall get the information from it which will enable authoritive information to be given.

(6) The whole sum devoted to the National Poultry Institute is only £50,000; this would not have gone far towards the provision of land. The provision of land means the provision of houses for those who occupy it. It is altogether too big a proposition for the National Poultry Council to attempt; it affects the whole question of agriculture, not poultry-keeping alone.

(7) The National Poultry Council has appointed a committee which deals with these problems, and has obtained some concessions, but it must be understood that this affects the whole question of transport. The companies will not consider it without they are revising the whole of their rates. The committee has done much useful work.

(8) The S.P.B.A. is giving this matter consideration.

(9) Our correspondent seems totally unaware of the enormous amount of work done by the National Poultry Council in this direction, of the time and money spent by individual members, and how nearly success was attained. It was hardly a question of finance, but rather one of Free Trade v. Protection which wrecked the Bill. The matter will soon, we hope, be again brought forward, and the National Poultry Council is prepared to deal with it immediately the time arrives.

(10) On this matter we will see what can be done. But our correspondent should be aware, for the facts have been published in "Eggs" and other journals, that poultry farming is **husbandry.** The National Poultry Council has successfully supported appeals in many cases, and given advice as to how to proceed in many others. If there is any trouble, the Council is always prepared to advise as to action to be taken, and particulars can be forwarded direct to the Secretary of the N.P.C. or through us.

Our correspondent says, in regard to control of markets:—"Lancashire has started fixing prices;

what of other counties?" Ah! what of them? Lancashire did not wait for someone else to take the initiative, she took it herself. It was due to the enterprise of a few poultry farmers. He next writes of the cost of foodstuffs, and suggests starting co-operative stores which could buy hundreds of tons at a time. We are probably correct in saying that such an undertaking would require a capital of at least £20,000, and then would involve a tremendous risk. Where is the money to be raised? There is the question not only of buying but of distribution. If the S.P.B.A. scheme materialises, as we hope it will, it has not the remotest chance of success if it has not the support of its 6,000 members. We are not speaking of financial support, but the co-operation of the members themselves, who are willing not only to be served, but to serve.

We have, perhaps, replied somewhat bluntly to our correspondent, and what we have said may give offence to some of our readers; but we prefer to risk that rather than raise false hopes, or to acquiesce with the views put forward by the writer of the article, and so convey a mistaken impression. The societies are able to do a great deal, but neither their financial resources, or those of the National Poultry Council, are sufficient to attempt one half of what is indicated in "Ex-Airman's" article. And again we repeat, that there is too much apathy on the part of those whose own interests are at stake, and too little support when the initiative is taken by the societies.

NORTHERN UTILITY POULTRY SOCIETY'S LAYING COMPETITION, 1923-24.

FINAL REPORT.

Figures are eggs and points respectively:—

Section 1.—White Leghorns).—Allen Bros., 857, 798; Ann, Douglas, 871, 735; Beattie, Wilson, 783, 747.

Section 2.—White Wyandottes.—Ann, Douglas, 639, 639; Berry, P. K., 804, 560; Booth, James, 603, 415.

Section 3.—A.O.V. (Non-Sitting).—Bowles, Eustace (Anc.), 615, 615; Bryning Bros. (Anc.), 707, 707; Hamnett, W. (B.L.), 711, 615; The Lady Latymer (Br.L.), 820, 820; Hall, R. C. (Cuck. & Bl.L.), 767, 589.

Section 4.—A.O.V. (Sitting).—Gaskell, Albert (Buff Orp.), 698, 698; Margerison's, Rishton (Buff Orp.), 888, 888; Browns, Oscar C. (Buff Rock), 811, 811; Ashworth, J. (R.I.R.), 860, 860; Ball, Mrs. Ernest (R.I.R.), 777, 777; Chivers & Sons, Ltd. (L.S.), 838, 729; Dugdale, Major J. G. (L.S.), 608, 518.

Section 5.—Small Breeders.—Braithwaite, W. H. (W.L.), 905, 839; Brown, J. W. (W.L.), 765, 765; Peach, W. (B.L.), 732, 732; Jenkinson, Ellis (W.W.), 632, 497; Barr, A. E. (L.S.), 372, 323.

Section 6.—Championships.—Edmonds, James (W.L.), 1227, 1227; Hurst, R. G. (W.L.), 1570, 1570; Metcalfe, G. B. (B.L.), 1745, 1745; Chisbury P. Farm (W.W.), 1533, 1329; Rayner, G. H. (W.W.), 1693, 1693; Metcalfe, G. B. (R.I.R.), 1814, 1800; Rigby, J. A. (R.I.R.), 1887, 1887

Section 7.—Ducks.—Banall, Miss M. (K.C.), 820, 820; Barr, Miss A. E. (K.C.), 733, 733; Long, Capt. R. A. (K.C.), 931, 931; Berney, R. H. (F.&W.R.), 837, 837; Berney, R. H. (W.R.), 626, 626; Johnson, R. A. & A. M. (W.R.), 727, 727.

Pioneer Poultry Farm,
Kalaw, Fedtd. Shan. States, Burma.
11th June, 1924.

"Dear Sir,—Your excellent paper is worth all the other poultry papers put together. I glance through the others and read yours from beginning to end for fear I shall miss something useful."

Yours faithfully,
(Signed) DOUGLAS J. ANSELL.

Modern Poultry Feeding.

By TOM NEWMAN.

MODERN POULTRY FEEDING.

I take the following from the "San Diego Union," which has been forwarded me by Mr. Fred Fielding. It will be noted that a new vitamin has been discovered which is provisionally called "X," and which is said to be necessary for reproduction. That makes the fifth. Dr. Eddy's remark that these discoveries have not "jeopardised the science of nutrition in the least" is rather difficult to understand. What will comfort many of us is the discovery of the vitamin in tea. I have just been told that I must give up my morning cup, as so much tea was not good for me, now I have a complete answer. But it was only a little while ago that we were told that Balkan people were the longest lived in Europe, and their longevity was the result of drinking sour milk, and some of us had some. The prospect of vitamins becoming a merchantable commodity seem exceedingly remote, for the quantity of "X" extracted from a ton of wheat germ was "only a few flakes." One point on the vitamin in tea requires elucidation. To quote from the article:—

"Vitamins are easily killed. It is difficult to preserve them in any form. Though certain foods may have contained them at the start, it does not prove they continue to do so. Cooking destroys part of the vitamin, and excessive cooking may eliminate the whole of them."

When you think we pour boiling water over our tea, and allow it to stand, you must agree that it is pretty thoroughly cooked, and that being the case it is hard to reconcile the tea vitamin, and the claim that it is because of it that nations who drink tea have longer lives.

CAPTURING THE ELUSIVE VITAMIN, LIFE ELEMENT IN FOOD.

The mystery of just how the eating of food sustains life, which has always puzzled scientists, can now be explained, for the substance that makes life possible has been found.

At a recent meeting of the American Chemical Society, Professor Walter H. Eddy, of Columbia University, took from his pocket a small vial and passed it around among the assembled chemists. All they could see was a small quantity of white powder at the bottom of a bottle. Yet it created a sensation, since it was the first vitamin that anyone had ever seen or handled. An amount no more than three-hundredths of a milligram, which is about as much of the powder as could be caught on the point of a pin, given every day to a young rat stunted by living on deficient diet, would cause it to grow again at a normal rate.

The name for this substance more commonly used in laboratory parlance is "bios." The powder has a crystalline form of definite pattern. It has been proved absolutely pure by three checks. It is a stable stuff, melting at 223 degrees Centrigrade, and sublimating like any other well-behaved crystalline entity. The proportions of carbon, nitrogen and other elements which compose it have been established. The analysis indicates that its molecule is composed of five atoms of carbon, eleven of hydrogen, three of oxygen and one of nitrogen.

"What is the significance of all this?" Dr. Eddy was asked.

"First, remember it has not jeopardised the science of nutrition in the least," was his reply. "We still need proteins and proteids and so on. But the study of vitamins deepens our science of nutrition.

"Most malnutrition is due to absence of vitamins. Beri-beri, rickets, scurvy—these are diseases of malnutrition. And with pure bios it is now possible to carry on research into the therapy of malnutrition. Heretofore we had substances rich in Vitamin D. But they also contained any number of other things. In studying therapy you never knew whether a result was due to Vitamin D or some other unknown substance."

What is a vitamin?

"It is not a food." Dr. Eddy explains. "But it is a necessary factor of nutrition. The most graphic illustration I've come across is this: Vitamin is to the human engine what the electric spark is to the gasoline engine."

A human being needs 3,600 calories a day for ordinary mental and physical activities. That is the fuel for the engine, so to speak. But plenty of fat and starch and so on to make up this number of calories may be eaten, and if vitamins are missing the energy is not converted or utilised. The gasoline is going into the cylinders, but there is no explosion because there is no spark.

Vitamins are easily killed. It is difficult to preserve them in any form. Though certain foods may have contained them at the start, it does not prove that they continue to do so. Cooking destroys part of the vitamin and excessive cooking may eliminate all of them. Vitamins exist in all fresh vegetable foods, and they occur in milk and in meat from animals fed on fresh foods. They are destroyed by heating, their destruction depending on the length of time the food is heated. A fair proportion of vitamins in fresh vegetables appear to survive ordinary cooking, but prolonged boiling, such as occurs in making stews, destroys a large proportion.

The process of extracting vitamins is a tedious and delicate one. Starting with six pounds of moist brewers' yeast, Dr. Eddy says he is lucky in being able to get out seventy milligrams of the product in the end. But this is so potent that five-hundredths of one milligram per day added to the ration of a young rat on a deficient diet will restore it to health and start it growing.

Vitamins may turn out to be a clue, not only to the cause of many obscure diseases but also to some of the problems of history. What is called race suicide or class suicide may be due in part to an accidental dietary deficiency, for Professor Herbert M. Evans, of the University of California, has discovered that, besides the vitamins necessary for health and growth, there is another that he provisionally calls "Vitamin X," which is essential for reproduction.

Scientists have proved by experiments that rats living on food devoid of Vitamin X will grow up and thrive and live apparently normal lives, but the males cannot generate and the females cannot bring forth young. Fertility can generally be restored by adding to the ration some food containing the lacking Vitamin X or a few drops of the concentrated extract.

Wheat germs, lettuce, egg yolk, living, vegetable oils, and butter, especially butter from alfalfa fed cows, are among the food containing Vitamin X, but it is absent from skimmed milk, sugar, white bread and cod liver oil, although cod liver oil is very rich in the vitamins that promote growth and prevent rickets. A mother may transmit a limited supply of Vitamin X to her offspring, but not enough to last through life. Sterile rats may be cured by feeding on the flesh of normal rats.

Professor Evans extracted Vitamin X from wheat germs and obtained it as an oil of high potency. However, it is present in such small quantities that only a few flakes were secured from a ton of grain.

Scientists at the University of California are also experimenting with the recently discovered vitamin in tea, which may prove of great importance in lengthening life. It is supposed to have 300 times the life-giving qualities of other similar vitamins previously found in yeast. It was discovered, it is reported, as a result of observations that tea-drinking peoples, including Chinese, Japanese, Irish and English, are longer lived than some other nationalities.

The Internal Mechanism
of the Egg-Laying Machine.

By **J. L. ROSEDALE.**

II.—"THE STRUCTURE OF THE MECHANISM."

It will be agreed, I am sure, that our little talks on the Internal Mechanism of the Bird cannot include a very detailed survey of all the interesting points of anatomy and physiology. All we can attempt is a brief mention of some of the important facts which can be more readily made use of in our daily work of managing our flocks to the best advantage.

Anatomy often means to veterinary students—"Dry bones." On the other hand, our venture into the "Internals" must be considered, to some extent, as a journey into a strange land, which we propose to explore. If we are to meet with any success, we must first gain some little knowledge of its geography before we can appreciate the general political economy of that country.

Thus I need not apologise for bringing to your notice some information which is properly called "Anatomy"—or the geography of the body, as well as the physiology or "Political Economy" of the organism, which has a more direct bearing on the rest of the course.

The simplest "Lump of Life" that is known is a protozoon, consisting of one solitary cell—to all intents and purposes, when seen under the low power of the microscope—a lump of jelly.

This lump of jelly moves, and has its being wherever it is placed. It has no particular shape of its own, as its shape can be altered according to circumstances. A bird, however, is different, it has a shape and a definite one, which is maintained by its skeleton—the bones. This box, or skeleton, is so made that the internal organs, such as the heart, lungs, etc., are given enough room to do their work. As these grow the skeleton must grow also.

There is, I think, little need to dilate on the external features of birds to poultry-keepers, but there are one or two points which require careful study.

First of all, the feathers. These are important from two aspects, as far as our practical work is concerned. They are, in the first place, interesting from the colour standpoint, in so far as they constitute the main difference of breed. This brings us for a moment entirely out of the province of nutrition into consideration of the breeding problems. In his interesting book—"Heredity in Poultry"—which will well repay the poultry-breeder to study—Professor Punnett states that hardly anything is yet known of the genetic relationship between the various types of feather markings. Of course, a great deal has been unfolded by Professor Punnett concerning a few definite types which is already very valuable knowledge to those interested in the day-old pullet trade. Practical experience can, however, afford one definite piece of information on the value of purity of breed. One of the sex-linked crosses suggested by Prof. Punnett is black leghorn male x barred rock hen. The cockerels at day-old have a white patch on top of their heads, and may thus be distinguished from their sisters. The size of the white patch varies almost down to a single feather in some cases, which often causes error in diagnosis at day-old. I have found the ease or difficulty of telling the sexes to depend somewhat upon the purity of the strain of the parents. It is possible that from such observation a method could be devised for standardising or analysing types, and in any case it brings forward a point in mitigation of the distinction which some people are apt to draw between what they are pleased to call "Show Types" and "Utility Types."

In the second place, feathers are interesting to poultry-keepers on account of the moult. The advantage to the domestic fowl is not altogether clear, but they belong to the genus "Aves," and it is a useful characteristic to many species of birds to moult.

Professor J. Arthur Thomson draws attention to the fact that feathers are easily damaged, and, therefore, renewal is advantageous, especially "when it takes place just before the time when it may be necessary to set forth on a long migratory flight. . . most remarkable is the case of the ptarmigan, which changes its dress three times in a year. After the breeding season the plumage becomes grey; as the winter sets in it grows white, and suited to the surrounding snow; in the spring, the season of courtship, the mottled brown wedding robes are put on."

Whether or not the moult is useful to the hens; it does not seem altogether advantageous to the poultry-keeper! Birds, however, can lay while moulting, provided they are fed well, and kept warm and comfortable. Birds have been known to produce eggs rather than feathers, and remain "naked" for the time being. What they do not seem able to do is to grow new feathers and produce eggs at the same time.

Very little appears to be known of the chemistry of feathers, except that they differ from eggs in one distinct item—sulphur. Eggs contain only a small amount of sulphur, while feathers contain a pretty large supply in the form of cystine—the only amino acid which contains sulphur. About six per cent. of the weight of the bird consists in feathers.

Another interesting anatomical feature is the structure of the bones. The bones of birds differ from those of mammals in that the ends of birds' bones do not have what are called "Epiphyses"—the ossified endings of mammals' bones. This is important, because it means that birds cannot have ordinary rickets. Rachitic bones show an absence of calcification in the "Epiphyses," which cannot be present in bones which do not possess epiphyses. This does not mean that bones cannot be adversely affected by malnutrition; it only means that the information gained by studies with rats may not be directly applicable to poultry, and that the whole question will have to be opened again and studied from the point of view of the bird.

Bandy legs do not necessarily denote rickets; they merely show that the skeleton has not grown proportionately to the rest of the body, and that there is too much weight of body tissue for the bones to carry—"Hanging too great a weight on too slender a clothes' line!"

The composition of the adult skeleton is very different from that of the adult internal organs, though in the beginning they all came out of the egg—bones and all! While this difference in composition affords to the scientist a wide field for research, there is surely one point which is of importance to the practical man. If you do not feed the bird with bone-forming materials and materials forming soft tissue in PROPER PROPORTION, then the two separate structures cannot grow in proper proportion. That the two structures are separate as regards growth is demonstrated by the Missouri experiments on cattle. The result of improper proportion will be that the skeleton will become either too big or too small for the rest of the body. As a matter of fact, nature tends to prevent one of these calamities—the getting too big, but it does not prevent the other. You can get the skeleton too small quite easily by wrong feeding. However, I shall have occasion later on in the course to tell you how to avoid such a catastrophe.

The cells of the bird's body are "Specialists." Each has its particular job, and does it; but it does not do the work of any other part of the body.

This is different from the single-celled organism, to which I have already referred. The single-celled organism, for instance, may take in its food at any part of its body, but you could not fatten a bird by putting the whole of the contents of your granary under its wing! The food has to go in at the mouth, and undergo the different processes which I shall have to describe next time.

As the mouth is the only normal inlet of food to the bird, arrangements have to be made for feeding all the other cells. The only way tissue can live is by nutriment coming direct from the blood, and by getting rid of waste products at the same time. If the blood is to bring nutriment to the cells it must obviously contain the proper food for the cells. On the other hand, the blood also acts as "dustman," and, therefore, it is not difficult to understand that the blood has to discharge these waste products sometimes, and get a new supply of food to take round.

The heart is the power station of the circulatory system. This organ pumps the blood through the body. The blood flows down through the arteries deriving the food constituents from the inestines and liver, and carrying them to the cells, which also take up oxygen from the blood. The blood collects the waste materials from the cells, and, returning, discharges some of them through the kidneys. The blood on return to the heart is still not ready to go through the body again. It is too poor in oxygen to be of use to the cells. It is, therefore, sent by the heart on a little journey to the lungs, where the final purification takes place, and the blood is returned to the heart ready for another journey through the system.

The lungs, as well as the kidneys, are filters, and are composed of little tubes. These have to be kept clear and clean, or else stoppage is set up. The kidney can be choked by wrong feeding, which I shall have to explain to you later, and the lungs can be choked by colds and pneumonia, which are caused by improper ventilation, whether too much or too little. If your ventilation is wrong, the blood may not be properly purified by the lungs. A supply of pure air in poultry-houses is, therefore, essential. If the air is polluted by vapours rising from wet decomposing food, litter, and droppings, you decrease the amount of pure air available for the purification of the blood by the lungs, and at the same time give excellent opportunity for the outbreak and spread of disease.

Comparison of outside air and air in barns shows quite a difference in composition, but surely, given a good house cleanliness will go much further in promoting pure air for the lungs and general health than the various little ventilation gadgets and dirty houses.

Thus we see that all the different "Specialist" cells, of which the body is composed, work together for one end—namely, for the proper nutrition of themselves and of each other. Truly, nutrition is the bed-rock of life.

EGG-LAYING TEST—THE GLOUCESTERSHIRE REPORT.

FOR FIRST MONTH OF NEW YEAR.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry-Keeping) for the first month ended November 7th:—

During the month 2,489 eggs (pullet section) have been collected, giving an average of 7.7 eggs per pullet.

The general health of the flock is good, although the majority of the birds entered appear to have suffered more from the general move than in the case of the birds entered last year.

The method of scoring for the month under review is:—Grade A, 1⅞ oz. or over to score 5 points; Grade B, 1⅝ oz. but under 1⅞ oz. to score 4 points; Grade C, eggs are recorded but no points awarded.

(Five birds constitute a Pen.)

Section A (1).—White Wyandotte (Professional).—F. W. Clifford, 338 pts.; P. M. Hinton, 295 pts.; H. W. Fowles, 170 pts.; J. E. Boyd, 170 pts.; H. T. Godber, 137 pts.; H. Bennett, 113 pts.

Section A (2).—A.O.V. Heavy Breed (Professional).—W. R. Partridge (R.I.R.), 407 pts.; G. H. H. Simmons (L.S.), 388 pts.; M. C. Beale (R.I.R.), 351 pts.; C. G. Young (R.I.R.), 315 pts.; J. G. Herbert (R.I.R.), 303 pts.; Miss M. Lawrence (R.I.R.), 290 pts.

Section A (3).—A.V. Light Breed (Professional).—F. A. Welch, 351 pts.; Miss M. R. Jenkins, 249 pts.; Sherborne Park P.F., 237 pts.; R. Gray, 203 pts.; G. H. H. Simmons, 174 pts.; Miss H. Baylis, 163 pts. All White Leghorns.

Section B (1).—A.V. Heavy Breed.—Maisemore School (W.W.), 473 pts.; A. W. Moses (L.S.), 457 pts.; Miss M. Brown (W.W.), 214 pts.; L. Grist (W.W.), 185 pts.; R. T. Miles (B'Veld), 5 pts.

Section B (2).—A.V. Light Breed.—C. E. Skirten, 240 pts.; Miss M. Brown, 210 pts.; L. Grist, 190 pts.; J. D. Crewdson, 70 pts. All White Leghorns.

PEN DUCK SECTION.

(Four ducks constitute a pen.)

W. R. Partridge (W.R.), 51 pts.; G. H. H. Simmons (K.C.), 46 pts.; Miss N. Townsend (K.C.), 30 pts.; Miss M. Lawrence (K.C.), 27 pts.; Major J. G. Dugdale (K.C.), 24 pts.; S. J. Phillips (K.C.), 21 pts.

SINGLE PEN SECTION.

Section 1.—White Leghorns.—Miss R. E. L. Shearn, 97 pts.; L. Grist (6), 95 pts.; L. Grist (13), 95 pts.; Miss N. Townsend (5), 90 pts.; G. H. H. Simmons, 79 pts.; D. Japp, 77 pts.

Section 2.—White Wyandotte.—Lord Sherborne (37), 125 pts.; W. R. Partridge (34), 116 pts.; H. W. Fowles, 110 pts.; Philip Clapham (36), 110 pts.; G. H. H. Simmons (31), 105 pts.; W. R. Partridge (38), 104 pts.

Section 3.—Rhode Island Red.—G. B. Metcalfe, 90 pts.; Miss M. Lawrence (59), 85 pts.; S. Barnes, junr. (48), 40 pts.; Miss M. Lawrence (42), 35 pts.; A. Daunton, 20 pts.

Section 4.—A.O.V. Light Breed.—Churchdown Ped. P.F. (Anc.), 97 pts. No other bird in this section has yet commenced to lay.

Section 5.—A.O.V. Heavy Breed.—Mrs. E. Weinholt (Aus. Orp.), 109 pts.; Lady Bledisloe (Aus. Orp.), 94 pts.; Miss Lawrence (Buff Rock), 87 pts.; G. H. Simmons (Buff Rock), 84 pts.; R .T. Miles (B'veld), 60 pts.; Maj. Dugdale (L.S.) (50), 50 pts.

Section 6.—Ducks.—Maj. J. G. Dugdale (K.C.), 27 pts.; W. R. Partridge (15) (W.R.), 26 pts.; W. R. Partridge (14) (W.R.), 24 pts.; Mrs. H. L. Hanks (K.C.), 24 pts.; Mrs. E. Weinholt (K.C.), 19 pts.; H. W. Fowles (K.C.), 13 pts.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Major C. G. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Major Saunders.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Major Saunders).

ALL questions should be addressed to the Editor. Major Saunders does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

G. E. B. (Erdington) has a pullet which, he says, has suddenly become "incapacitated." A large portion of "her inside" is hanging out. He asks for advice as to treatment. He has bathed the part with oil, and placed it back, but it will not remain; he is feeding on bread and milk, and has isolated the bird. He now asks if it is worth treating. The pullet is suffering from prolapsus of the oviduct, probably due to her having passed an extra large egg; the bathing with oil was mistaken treatment. Some astringent should have been used, such as alum and water, tannic acid, or even strong cold tea. I am afraid it is too late now to help her. Such cases are more often prevalent in the flush months, so my correspondent will know what to do in future.

Staffy (Stoke) wants a wet and dry ration made from the following foods, solely for egg production:—Bran, Sharps, Maize Meal, Pea Meal, S.G.O., Yeast and Fish Meal. As the formula is solely for egg production, there is no need to use the more expensive foods, such as yeast and S.G.O., and soya bean meal will be cheaper than pea meal. A good ration, wet or dry would be:—Bran 1lb., Sharps 4lbs., Maize Meal 2lbs., Pea Meal ½lb., Fish Meal ½lb.

D. J. Y. (Leverburg) wishes to know if an ordinary fowl-house, 8ft. x 6ft., 5½ft. front x 3½ft., would be suitable for a 150-size Gloucester incubator. Could he hatch with it successfully? What is the best time to set eggs (R.I. Reds and White Leghorns) for October eggs? No, D. J. Y.; you could not hatch successfully in such a house. The variation in temperature would be too great, generally speaking, it would be too low, and the ventilation would be difficult. The best time to hatch R.I. Red eggs for October laying will be about mid-March, and the Leghorns about mid-April. You must recognise, however, that some strains mature much earlier than others, and there are environmental conditions to consider.

Tonto (Gunnislake) asks if birds on free range require 10 per cent. fish meal in the mash; (2) whether the distance between the pelvic and breast bones is the same with birds in full moult as with birds in full lay; (3) whether it is too close to mate a cockerel to his mother's sisters, and a cock to his brother's daughters? (4) If 166½ is a fair flock average on dry mash on free range—no corn until the evening, winter or summer? During the winter months it would be advisable to continue the 10 per cent. fish meal in the mash, but in the spring and summer, when insect life is abundant, it is not necessary. (2) The answer to this question is, a fowl in full lay consumes a very much larger quantity of food than one which is not. The intestines about double their normal size during periods of heavy production. The increase in size is due to the stretching of the walls of the intestines. At the same time the ovary and oviduct are also greatly increased in size and weight. When the hen is in full lay, the abdomen becomes much enlarged, due to the enlarged intestines, ovary and oviduct. The pelvic bones are well spread. As the bird goes out of lay, both the abdomen and pelvic bones contract. (3) These matings are rather close, and not to be recommended unless the birds are of exceptional quality, both as regards stamina and production; if there is any weakness it will only be intensified by such matings. (3) The flock average is quite satisfactory.

W. A. (Ingatestone) asks if there is any instrument by which one can tell if an egg is fertile or not, and the sex of the same before placing it in the incubator? (2) Would it be possible to test eggs three days after incubation, take out the clears, and sell them as cooking eggs? or would you advise leaving them longer and use the infertile for feeding the chicks? (3) Would I recommend a coal-burning brooder to an oil-burning hover?

No, there is no such instrument, W. A. Those advertised are by clever scamps, who appreciate the readiness with which a gullible public parts with its hard-earned cash. If you want to make a little experiment yourself thread a needle, and hold it by the thread over the eggs; it will perform the same movements as the articles which are said to tell the sex of eggs, or of anything else from a piece of wood to an Egyptian mummy. But it will not tell you whether an egg is fertile or not, or what the sex of the egg may be. It is simply a case of auto-suggestion. (2) If you had enough experience you could tell whether an egg is fertile or not three days after it is incubated. When you can do this it would be better to sell them to confectioners than to feed them to chicks; it is quite possible that one of them may be infected with B.W.D. In that case there would be a serious mortality. (3) Personally, I prefer the oil hover to the coal-burning brooder.

Livorna (Dumfries) asks if it is correct that, by mating a R.I. Red male to White Wyandotte hens, he can detect sex of chicks at hatching, and whether there is any mating with a Croad Langshan which will give similar results? You are correct as regards the first cross Livorna. It will give you buff or red pullets and white or silver cockerels. I do not know of any cross with the Croad which will give sex-linked cross.

J. K. (Norfolk) says that a friend of his has sent him a certain recipe, which he states is equal or superior to a well-known disinfectant. I cannot publish the recipe as it has reached me from another source, and is given as a specific for certain diseases, and I am asked not to publish it in "Eggs." Perhaps I may obtain permission to do so, later. J. K. wants to know how long it has to stand after mixing, and how much to put to the gallon of drinking water. It should stand for 24 hours, and then be skimmed, and then stand for three days, being stirred every day; it should then be bottled. Two tablespoonfuls to the gallon of water would be the dose.

A. S. M. (Hants) has Rhode Island Reds which he wishes to cross to get a smaller table bird. He wants to preserve the "laying type," and asks if an Indian Game cockerel will answer his purpose. The Indian Game would not answer his purpose; the cross would give a much bigger bird than the pure Red, and would be a poor layer. A Houdan cockerel would be more suitable for his purpose. He cannot preserve laying type by crossing; there is no such thing as a "laying type."

W. M. (Scotland) has used a salt mixture containing 13 ingredients, which was published in "Eggs" some four years ago, contributed, if my memory serves me, by Mr. F. W. Wait. She has given it to her pullets from the age of five months ever since, and has never had the courage to stop it, except for one month, when there was a great drop in the egg yield. She has 14 White Leghorns, which on my dry mash are now laying 10 to 13 eggs a day, with the salt mixture added. Light Sussex, 16 in number, on the same mash are only laying three and four eggs a day; they appear to get lazy, and put on internal fat. Now, W. M. wants to know if the salt mixture is necessary. Without going so far as to say it is absolutely necessary, I believe to be of great value, conducive to good health, which means a good appetite and eggs. You might care to try a less expensive mixture:—60 parts steamed bone meal, 20 common salts, and 20 limestone dust, or powdered oyster shell, 5ozs. to every 10lbs. of mash. With regard to the Sussex, it would seem that the breeding, to some extent, accounts for the poor production, as they would not run to internal fat if they were good layers, and more of them ought to be laying, as they were hatched on March 1st. I suggest you try giving them a small scratch feed in the litter first thing, and open the mash hoppers later. It is better to make a hen, which has a predisposition to fat, scratch for her living than to dose her with Glauber or Epsom salts.

B. M. C. (Aldborough) turned her eggs twice daily last season, and had only moderate results, found that while turning the temperature dropped to 90 degrees, and took several hours to regain its proper reading. She has 25 Wyandotte hens, which laid well last winter and all the summer, but are now moulting slightly, and are completely off laying. She asks if their present condition mean they are not a good winter laying strain. She also asks what is a fair average for hens and pullets at this time of the year. Being a novice, she has probably been unnecessarily careful in turning eggs, and has allowed them to become too cool; until they had regained their temperature, that of the incubator would remain low. It should not take five minutes to turn 100 eggs; just remove a few from the centre of the drawer, and roll the others gently over. The Wyandottes are good winter layers; you cannot expect them to continue laying while moulting. They will come into lay again after Christmas, and should prove good breeders in the spring. A good average for pullets at this time of the year would be 2½ eggs a week.

G. T. (Cardiff) complains his birds always have colds, and sends plan of a house, which is none too clear, but it is obvious that the birds are too exposed, the wire netting above the glass front being on a level with the perch, so that the birds feel the cold wind when on the perch. It would be advisable to tack a piece of hessian over this netting; there would still be quite sufficient ventilation. In reply to his other question, May-hatched Minorcas will not be mature enough to breed from next spring.

C. M. (Worcester) can't be told what caused his pullets to go into a moult, and their combs to shrivel up, unless he sends some details. It should be obvious to him that there are many things which can cause this condition. It is not probable that a cross between Black Leghorn hens and an Australorp male would give better results than Black Leghorns pure. It would be better if the cross were made the other way. Some of the resulting pullets would be broody as the Australorps, others less so, and some not at all.

M. D. (Herne Hill) will get a sex-linked cross by mating his Light Sussex hens to a Red Sussex male, a first-class table bird, quick to mature; the pullets will be red, the cockerels white or silver. If the hens are first-class layers, the progeny will not be so good as their parents, as the Red has not been bred for heavy egg production; if they laid only moderately the progeny would probably lay as well. I cannot express an opinion as to the cause of his hatching failure last year. He appears to have run his machines correctly, but one cannot gauge anything by merely being told the hatching percentage. It would help if the percentage of infertiles were known, and at what stages the dead-in-shell occurred.

A. T. (Avonbridge). No, you are mistaken, High Fecundity does not mean fertility as used for poultry. It really is applied to high egg production. I quite appreciate how the terms, "fecundity" and "production," as used, are confusing, but in reality, we are speaking of the same thing.

"Beginner" (Cornwall). In reference to the samples you have sent. The sample of middlings "C," although superior to "B," is not by any means a good one. There is far too much ground-over bran; the quality is really not good enough, and you cannot expect the birds to produce on such foods. The bran, "A," is very inferior. If you handle it you will see how very harsh it is. "B" is a little better, but neither of these samples are good enough to feed to laying stock. "C" is the best of the three, and this is a fairly good sample at a moderate price. These are not "Sussex" ground oats, and are very dear at the money. They appear to me to be adulterated. The fish meal is satisfactory. I suggest that your best plan will be now to get a better sample of bran and middlings, omit oats from the mash entirely, and double the quantity of maize. Make your mash:—One bran, two middlings, two maize meal, and half fish meal. Allow the birds two ounces of this each, weighed when dry, before scalding. Give your grain mixture, one handful between every three birds, in the litter early in the morning, and two ounces per bird as the last feed at night, also in the litter. No, there will be no advantage in changing from meat and bone meal to fish meal. The clover meal you ask about is quite a good sample.

A. H. (Greave). Your signature was absolutely indecipherable, so I am compelled to answer your letter through "Eggs." It is not usual, when the dry mash contains a percentage of bran, as indicated by you, to have more bran fed in a separate hopper. You tell me that you installed a bran hopper three weeks ago, and the birds appear to eat, bulk for bulk, as much bran as dry mash, and you want to know what effect the bran will have on the birds if they continue to eat such large quantities. I could not say that when they are fully matured they will eat less bran, but I would not continue to allow them access to the bran hopper. It is not the practice of some poultry-men to feed dry bran with dry mash if the latter contains a fairly high percentage of bran. As to its effect it will be this, that owing to its great bulk, the birds' appetites would become satiated, with the consequence that they will not consume sufficient nutritious and fat-forming foods. You would be wise to remove the bran hopper.

"Ipeka" (Dublin). In reply to your letter, I do not understand the "small proportion" as given in the advertisement. There should be a definite amount. You cannot expect me to express an opinion as to the right of the Society to trade. This is not for me to say. I am not a member of the Council, nor am I fully acquainted with its position.

E. H. (Hornchurch). There is no analysis of this fish meal, but it consists principally of ground fish bone. I do not consider it a particularly good sample at the price.

POST-MORTEMS.

L. We have made a post-mortem examination of the Wyandotte pullet, and find that she died of peritonitis, caused by the presence of two decomposed eggs. Production has been too rapid for passage into the duct, and they have disputed for precedence, with the result that neither could enter. We advise a fast of 24 hours and a morning dose of fifteen grains of sulphate of soda for a week or ten days.

C. The post-mortem examination of the R.I.R. hen showed the cause to be tubercular peritonitis and dropsy. Tuberculosis being entirely due to the presence of the bacillus of T.B. and an infectious disease, you need not blame yourself for any errors of management. We should recommend you to apply for leaflet No. 78, issued free on application to the Secretary, Ministry of Agriculture, 10, Whitehall Place, S.W.1, as it gives many useful hints as to the control of this disease.

H. We have examined the White Leghorn hen under magnification, and we are of opinion that the lesions are due to superficial injuries and not chicken pox or other infectious disease.

M. The post-mortem examination on the Light Sussex pullet showed the cause to be apoplexy, a large blood clot being found in the brain. Apoplexy is associated with high blood pressure and a weakness of the blood vessels, and both of these would be consistent with the excessively fat condition of this bird. The abdominal organs and cavity were overlaid and packed with masses of fat, but apart from this there were no signs of actual disease. I should advise restricting the fat-forming portion of the diet and lowering tension and blood pressure, by a fast of twenty-four hours, followed by a daily dose, fifteen grains per head, of Glauber salts for a week or ten days, given either in the mash or in water to drink.

W. Post-mortem examination confirms your diagnosis in all four cases; pneumonia in an acute form and an auto-intoxication which accounts for the behaviour you describe. There were no signs of the pneumomycosis caused by the aspergillus infection, nor of B.W.D.

A. I have made a very careful examination of the W. Leghorn pullet, but could discover no signs of actual disease. On the other hand, she showed every evidence of lack of constitutional vigour, and was very backward in development. You do not say why you killed her, but I presume that she was noticed to be not thriving.

M. The cause, in the case of the pullet, was peritonitis, due to the death and decomposition of a yolk that was still attached to the ovarium, which was diseased. This is a fairly frequent cause of death in good layers, and, of course, is not infectious.

K. The post-mortem examination of the goose showed the cause to be anaemia and debility, due to the very heavy infestation of intestinal worms. To treat the remainder, administer three drops of oil of chenopodium in a teaspoonful of castor oil to each bird, and repeat in one week. For the anaemia, mix one dram of carbonate of iron in every pound of mash, and continue for two or three weeks.

A. We have examined the chicks' post-mortem, and find them to be affected with coccidiosis. It is an infectious disease, and chiefly through the soiling of the food by the droppings of one already affected. We recommend burning the litter and thorough disinfection, and giving water only to drink that contains one dram of catechu to the gallon. This is curative in the early stages, and it would be well to continue it for a month, and, if possible, remove to a new site with subsequent hatches.

C. G. SAUNDERS, M.R.C.V.S.

EAST GRINSTEAD POULTRY ASSOCIATION.

There was a large and enthusiastic audience at the East Grinstead Institute on November 27th, when Mr. Tom Newman came to lecture to the members of the above association.

Mr. Newman read a very helpful and practical paper on Poultry Feeding, and gave some most useful advice as to the ways in which the rations could be adjusted to meet the steadily rising prices of foods.

Many questions were asked, and at the conclusion of the meeting a hearty vote of thanks was proposed by the chairman, Mr. S. H. Fawell, and seconded by Miss Maddison.

The next lecture will be given by Mr. S. C. Sharpe on December 11th, at 6.30, and any one in the district who is interested in poultry-keeping is invited to attend.

F. M. LAMBOURN, Hon. Sec.

Eastwood Manor, East Harptree, near Bristol.

Dear Sir,—I enclose cheque for 12s. 8d. for another year of "Eggs." If you made it £5 a year it would be cheap.

Congratulations on the only paper for ordinary mortals who are generally struggling to understand high-flown stuff from Expert Cranks.

Yours gratefully,
(Signed) C. J. LAMBERT.

"Mametz," Brundall, Norfolk.

Dear Sir,—Although only a member of about six months' standing, I must congratulate you on the soundness of the principles and the excellent spirit of the movement. I have kept poultry all my life, but must say that, thanks to the books sent me when I joined, and by following your excellent publication, "Eggs," I have learnt more since joining than the whole previous period, and my results this year following your methods of feeding, housing, etc., are most gratifying.

Yours faithfully,
(Signed) KEITH PARKER.

6, Rochester Place, Elland.

Dear Sir,—May I take this opportunity of complimenting you on "Eggs." It is a real poultry-keeper's friend, and worth all the other poultry weeklies put together.

Yours faithfully,
(Signed) H. CARTER.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary,
Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

LATE HATCHED CHICKS AND SLOWER MATURITY.

Some months ago I remarked, in reference to late-hatched chicks, that, in spite of the more favourable environment, they took longer to mature than those hatched earlier. Miss Collcutt wrote me at the time, and said she thought that it was just possible that this was due to the fact that they did not get enough rest, and that she was testing this theory. I have received a very interesting letter from her, in which she says:—

"My opinion was that the chicks did not get enough rest, and it was not commonsense to expect them to run about for at least 18 hours on end. They could not possibly give the digestive organs sufficient time to rest, and so their food failed to nourish them. I found it was during the first two months that they did not grow so fast as the January and February hatched ones. We had a house built, fitted with shutters, and the later-hatched chicks were made to have 12 hours' rest each night until they were eight weeks old. They responded to the treatment in a marvellous way, and the pullets came into lay at week before those hatched a fortnight earlier, and reared in the usual way. They were fed the usual ration, but they did not eat as much as those having the longer day, which, I think, shows the latter could not have digested their food properly. You were kind enough to be interested, and asked me to report on this year's work. The results were again so satisfactory that we are going to have all the brooder houses fitted with shutters; it makes it so very much easier to rear late Leghorns. Some R.I. Red pullets hatched this year, on April 5th, and sent to bed each night for 12 hours, came into lay at the same time as those hatched three weeks earlier, and reared in the usual way. They lay large eggs, and have a better frame. The cockerels were so well matured that many visitors to the farm told Dr. Baldwin they were as advanced as their February hatched."

I am sure Miss Collcutt's letter will very much interest our members. Writing recently I spoke of the importance of rest for the newly-hatched chick, and said I did not like incubators with glass fronts, as I was sure that the chick needed rest after hatching, and was best placed in a fireless brooder for 48 hours, but Miss Collcutt insists on a 12 hours' day for eight weeks, and when one comes to think of it, she is only telling us what our commonsense ought to have told us long ago, and, further, she has demonstrated that she is right.

THE INTENSIVE SYSTEM.

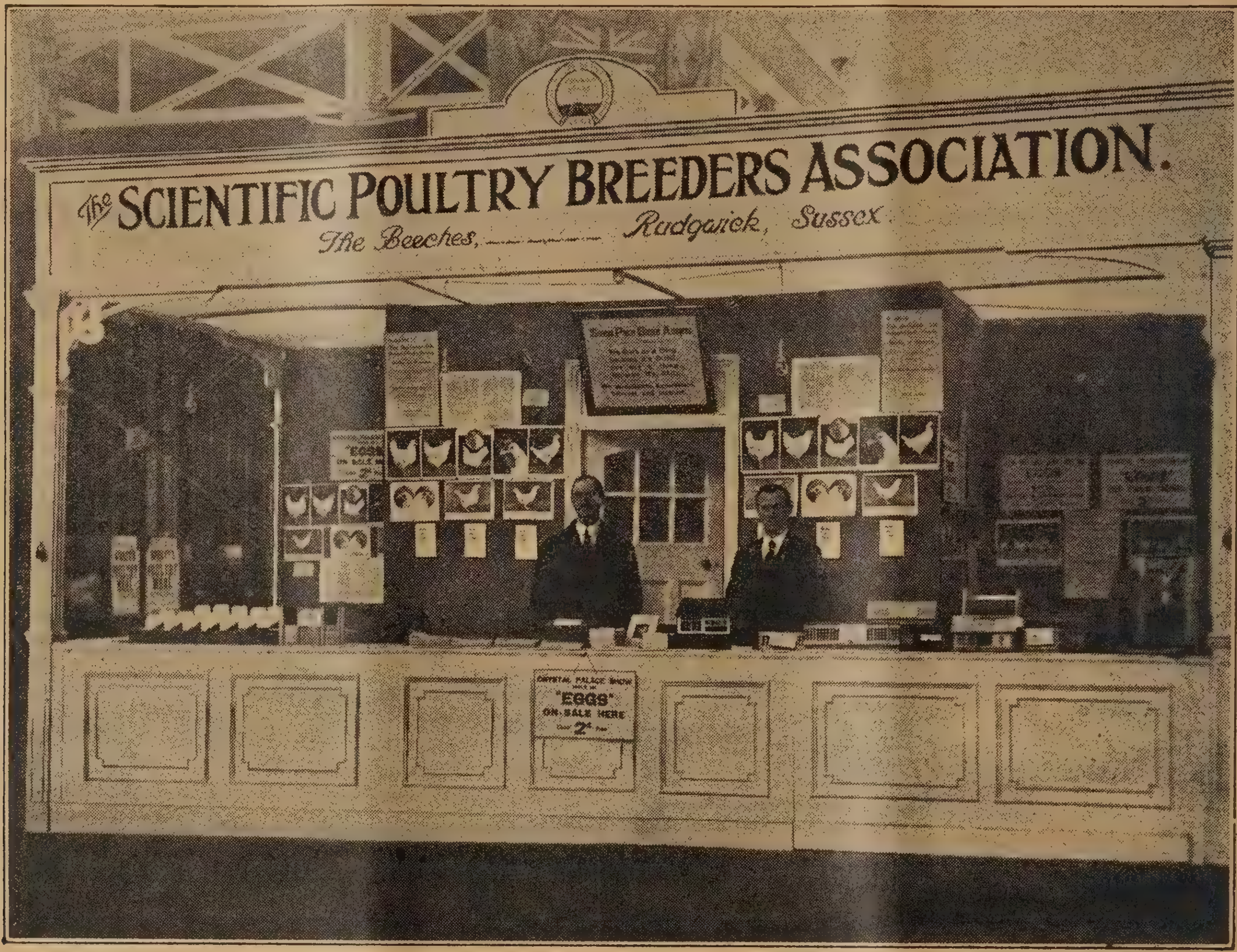
I have a very interesting letter from our old friend, Mr. Fred Fielding, who, as members will remember, is now located in San Diego. Writing on the Intensive System, he says:—

"Personally I don't think intensivism in its entirety would be a success anywhere. To run breeders and rear chicks intensively, is, I believe, foredoomed to failure. Those who have tried it here have had to quit, and renew their stock. They are, however, keeping layers successfully on this system. Those who do claim they actually get better results on this than on any other system. They buy day-old chicks, give chicks—(I was going to say range)—a run, and at four months old they are placed in laying quarters, where they remain for two years. They are also forced with lights during the short winter days, and fed on forcing laying mash. Lights are usually started at 4 a.m. There are a number who select breeders from these intensively-kept birds, and give them a run for a few months before using them. One may take such liberties here on account of the almost perpetual sunshine. The litter is always dry, which makes a big difference. This causes matters to work out entirely opposite to the damp or moist climate. Chickens here select the dampest place they can find to wallow in; in England they select the driest. Each intensivist has a large place in his house marked off for the dust bath. This he will moisten with dilute carbolic acid, or sheep disinfectant. I believe it is the extreme dryness that ensures the success of the intensive system here."

With all that Mr. Fielding says we are bound to agree—that is, as far as our experience goes at present, but there is room for further investigation very few will deny. My own particular interest is in the rearing of chicks, especially after the experience we have had during the last two seasons. The S.P.B.A. experiment in this direction will be watched with interest, whether it succeed or fails. The difficulty of damp litter, I hope we may succeed in overcoming, to a greater extent by proper ventilation. However, we are only hoping to find out something which will tell us something useful. If we were assured of success it would not be an experiment.

FRAUDULENT ADVERTISEMENTS.

We are nearing Christmas, and there will be the usual advertisements in the Poultry Press, for table poultry and eggs. There are always a lot of scamps at this season ready to prey on the producer. They may advertise as individuals; in some cases they have been known to do so as a county farmers' association, which never existed, or as poultry companies, or as colonial importers, and they will have elaborate note headings, with bankers' references, etc. It is very unwise to send anything to advertisers of whom you know nothing, whose only recommendation is their advertisement, or their note heading, and whose only address is too often some stable, or some such place with a number chalked on the door. Mr. Clarkson, in his marketing article, has drawn attention to these frauds. We have refused several doubtful advertisements for "Eggs" already. When they have got your goods there is very little that can be done. As I have said before, the Council endeavoured to prosecute one firm in Worcestershire, but the Public Prosecutor could not take action, although it was a most flagrant case, and the local police had received complaints from all over the country, but the man just managed to keep inside the law. I should say that this week we received an advertisement from the same firm, the directors' name alone being different. This time they are offering


The SCIENTIFIC POULTRY BREEDERS ASSOCIATION.
The Beeches, Rudgwick, Sussex
CRYSTAL PALACE SHOW
"EGGS"
ON SALE HERE
2d

THE S.P.B.A. STAND AT THE CRYSTAL PALACE.
The Secretary (Mr. TOM NEWMAN) and the Advertising Manager (Mr. S. H. BURLES) in attendance.

stock, chicks, and eggs for sale. Needless to say, the advertisement was refused, and enquiries are being made.

THE BLACK BRESSE.

In my report of the Crystal Palace Show, when writing on the Bresse, I remarked that "Mrs. Onslow Piercy's birds swept the board in Blacks; they were very typical. The general comment was lack of size. We certainly do not want them too small, and there is need for care in this respect."

When I wrote of the general comment, I did not intend to convey that that was my opinion.

Mrs. Piercy's birds were bred to the standard weight, and her first cockerel, first hen and first pullet were nearly half a pound heavier than the club standard.

The general comment referred to the breed as a whole. This opinion was held by a large number of people.

I have repeatedly explained that the Bresse is a small breed, and, owing to its tight feather, looks smaller than it really is. It is possible that a little increase in size is desirable in the interests of the breed, but it is very difficult to attain without coarseness, and any attempt to do so by an outcross would be ruinous. Size may be a desideratum, but it too often becomes fetish.

MR. P. L. JOHNSON.

Our members will learn with very great regret that the state of Mr. P. L. Johnson's health has rendered it imperative that he should dispose of all his poultry.

The whole of his White Wyandottes, I understand, have been secured by Capt. Lewin, Wyndham's Croft, Newport, Essex.

The success of the S.P.B.A. has been in such a great measure due to the splendid services of Mr. Johnson, both as a member of the Council, and as President, that we shall all hope that the complete rest will lead to improved health.

DEATH OF DR. BALDWIN.

It is with very great regret that I have to write of the sad death of Dr. J. H. Baldwin, which occurred as a result of a motor accident early on Monday morning, December 1st. It is not yet clear how the accident occurred, but the car—a two-seater—was being driven by Dr. Baldwin from Bournemouth in the direction of Wimborne. When nearing Pine Tree Glen the car appears, owing probably to a skid, to have run into a tram standard on the near side of the pavement.

The car was totally wrecked, and Dr. Baldwin was found lying in the road.

Dr. Montgomery was sent for, and found, on examination, that life was extinct.

Dr. Baldwin was known to many of our members and readers, and his sad end will come as a great shock to all of them.

Much sympathy will be felt for Miss Collcutt, Dr. Baldwin's partner, who has worked with him for many years, and done much to bring the stock to its present high standard.

For the future Miss Collcutt will continue to run the farm.

INCOME TAX ASSESSMENTS ON POULTRY FARMS.

In reply to a large number of communications which have been received by the National Poultry Council, it is desirable to make generally known the fact that in all cases where an appeal has been made to the Special Commissioners, a decision has been given that poultry farming is husbandry within the meaning of the Finance Acts. Further, it is satisfactory to announce that in a considerable number of cases Local Commissioners have given similar decisions. Amongst the former may be named the cases of Messrs. W. H. Cook, Ltd., Orpington; Mr. S. G. Hanson, London; Mr. Tom Barron, Preston; Mr. Arthur Thomas, Blackpool; and Mr. Arthur Snowden, Leeds. Whilst Local Commissioners have decided that poultry farms must be assessed under Schedule B, that is upon the rental. The cases of Mr. W. Schofield, Huddersfield; Mr. Warwick Rogers, Market Drayton; Capt. R. Wand, Newbury, indicate a growing recognition that the claims of poultry-keepers are in accordance with the law. Information has just come to hand that in the Holmfirth District of Yorkshire a number of poultry-keepers have appealed, and the Local Commissioners have decided in their favour.

At the same time, in many parts of the country, poultry farmers and breeders are reporting that the Income Tax Inspectors either do not know of the above cases or ignore them, with the result that they are putting pressure for payment under Schedule D. A further development is that demands are being made to separately assess poultry farms from any other income, and in this way secure a higher payment of Income Tax than would otherwise be the case. In more than one instance it has been reported that the profits upon the poultry farm were being assessed at 4s. 6d. in the £, without any deductions whatever. Under these circumstances poultry-keepers are advised to refuse to make returns on their profits when asked for, and, if an assessment is made under Schedule D, to at once give notice of appeal, communicating the facts to the National Poultry Council, 20-21, Essex Street, London, W.C.2. Where operations warrant the expense, it is always desirable to appeal to the Special Commissioners, but in other cases such appeal should be made to the Local Commissioners.

The National Poultry Council has endeavoured to ensure that the Inland Revenue should carry a case to the High Courts of Justice so that there may be an authoritative decision, but up to the present time have not succeeded. In one case, where the Inland Revenue has given notice of appeal against a decision of the Commissioners in favour of the poultry farmer, the National Farmers' Union has undertaken to pay two-thirds and the National Poultry Council one-third of the costs which may be incurred in defence of the poultry-keeper. Should that case come into Court, it is hoped that an authoritative decision will then be made.

NATIONAL POULTRY COUNCIL.

By invitation of the Lord Mayor of Cardiff the next meeting of the National Poultry Council will be held in the City Hall, Cardiff, on Thursday, January 15th, and as this will be the first visit of the Council to Wales, it is hoped there may be a large attendance.

Arrangements are being made for a public meeting, and Professor Williard C. Thompson, the new director of the National Poultry Institute, has kindly promised to give an address. Further particulars of this meeting will be published in due course.

NATIONAL POULTRY DIPLOMA EXAMINATION.

The following arrangements have been made for examinations by the National Poultry Examination Board to be held as follows:—

Preliminary examination at about the end of June, dates and places for which will be announced later. Candidates intending to take this must make application by June 1st. Final Examination, September 14th to 18th, at the Harper-Adams' Agricultural College, Newport, Salop, for which applications from candidates must be made by August 1st, 1925. The Regulations and Syllabus have been carefully revised by the Board, and copies of these will be available in a few days on application to the General Secretary, National Poultry Council, 20-21, Essex Street, London, W.C.2. Examination Papers can be obtained by intending candidates for the years 1921, 1922, 1923 and 1924, at a charge of 1s. 8d. per set, post free.

Correspondence.

APEX HOUSES.

To the Editor of "Eggs."

Dear Sir,—I am surprised to see in an up-to-date paper like "Eggs" a resuscitation of that obsolete contraption, the Apex House, and this presented, too, as if it was a new idea. Apex houses, with ventilator ridges, were very common 15 to 20 years ago, but, to my mind, and as an owner of many of them in the past, are to modern houses as the stage-coach is comparable to modern methods of transit.

I was under the impression light was a necessary factor in a modern poultry house; how it can be well reflected into an Apex house is difficult for a modern mind to understand, and there are also so many other objections to the type, that I have not patience to deal with them.

My only object in writing thus forcibly is because I note inexperienced people seem inclined to waste their money in their purchase or erection, and as commercial poultry farming is not at present one of the strictly competitive businesses, we are so far inclined to help one another.

No type of house is without its drawback, but the lean-to type of house is, I think, in all respects save one, the most suitable for commercial flocks, and as far as I am concerned, will not, I think, be superseded. I quite agree that unless there is back ventilation, trouble will come. I found this out some 12 years ago in the most appalling attacks of roup, contracted in the same houses in which now it is practically unknown.

The drawback to the lean-to type is that if the owners will have manure-boards, it is impossible to give the necessary but slight back ventilation, which is essential to prevent a bank of impure air forming over the birds' heads when at roost, without putting the birds in a draught. The best dimensions for a lean-to house, often known as the Hanson house—I got my first idea of them from "The Million Egg Farm," a book introduced by Mr. Randolph Meech, in 1910—are as follows: 8ft. from the floor line in front, and 5ft. at back, and not more than 14ft. or 15ft. wide. If manure boards are required then it is obvious that as they must be two feet from the floor, with the perches 9in. over the boards, the birds come very near the roof, and back ventilation is impossible.

With a manure pit instead of manure boards, the perches can be placed 18in. from the floor, and there is ample room above for the used air to rise and pass away, carried away by air entering either at the back or front, whichever way the outside air pressure may be. If manure boards are used, then one of the span-roofed types of houses should be used, with higher sides than it is possible to use in the lean-to type.

The lean-to type may be used in high situations without back ventilation, if it is built not more than 9ft. wide, as was well proved by Mr. Hanson, but I doubt if it would answer in such a low situation as the one I am interested in.

All the span-roofed houses cost more, and are much more difficult to build than the lean-to; they also require glass, which can be entirely avoided in the lean-to. I think it is probable I have had more houses built on this farm, many of which I have helped to build in times past, than any other amateur, and I also must admit I have scrapped more. The result is that 8,000 layers are now, with only one exception, housed in the lean-to type, fitted with manure pits, and there are also houses of this type sufficient to house 4,000 head of young and growing stock.

Every other type of house has been sold or ruthlessly scrapped as being uneconomical in one way or the other. I would, however, take this opportunity of reminding you, sir, of a conversation you and I had when returning from a meeting in the North, as to the size of units, some three years ago, when your opinion went to confirm a half-formed one of my own, that the 100-bird unit was probably the best from all points of view, in which to keep laying flocks. I then at once initiated a series of experiments, and have proved to my own satisfaction completely, this is so, the tests entered to the end of this year, afterwards they will be discontinued as being no longer in doubt.

I think for this flock a house 30ft. long, 14ft. wide, 8ft. high in front, and 5ft. at back, cannot be beaten, if fitted with manure pits, and one centre stall or division. For sheltered situations, if it is boarded up 4ft., and with wire netting for the upper 4ft., it will be right, both for light and shelter. The hood above the wire must be 2ft. 6in. wide. If the situation is exposed, then hinged shutters, 2ft. wide, should be fixed, 2ft. above the boarded front; these can then be up or down as required.

The Apex house and others belong to a period when we thought two square feet of floor surface per bird was sufficient, to the days of small flocks, when simply a roosting place was all that was thought necessary. When birds were kept at the rate of 100 to the acre, and feeding was done in the runs, this was rightly called the extensive system, and was one extreme. Then came the other extreme—the Intensive System. Both are wrong, and as the gallant Colonel wrote the other day, the middle course, or the Semi-Intensive system, which gives the advantages of both the others without their disadvantages, is the one to follow.

Yours faithfully,
T. W. TOOVEY.

PURE v. CROSS-BREEDS.

To the Editor of "Eggs."

Dear Sir,—You are so obviously open-minded, willing not only to teach but to learn, that your writings usually carry conviction. Therefore it is with great reluctance that I send a criticism of your views on cross-breeding. Sometime ago you referred to a proposed laying test for cross-breds, as a "retrograde step," and likely to hurt breeders of pure-bred stock. Now you return to the question and write of the serious effect on export trade, etc., of certain comments in the "Daily Mail" which seem to favour cross-breeding—comments caused by the result of the test.

But surely if the experiment is fairly tried it must be useful, whether it means success to the advocates of pure breeding or not. If pure breeding will not stand such a test it cannot be justified and ought not to be bolstered up in the interests of its exponents. Let every experiment be made and freely discussed, without fear of consequence to any branch of the industry. Anything less is treason, not only to science but to the poultry industry. If science counts for anything it must seek truth without hindrance, and if the poultry industry would thrive it must follow. Therefore, to discourage cross-breeding by suppression either of a test, or comments on a test, in the interests of a section of breeders, cannot be scientific or for the ultimate good of the industry. If we think cross-breeding is a mistake—and many of us do—let us bring its errors to the light and confute them there, with the pleasure that comes from opportunity to expose error and enlighten the ignorant. Less than that is a confession of our own weakness. I believe that it has been argued that cross-breeding tests prove nothing. That view seems an argument for their occasional use, if only to demonstrate the unreliability of crosses. In any case to shrink from the fullest investigation is to fail of the utmost possible success. Should these remarks express a misinterpretation of your views, I shall hope to be corrected.

Yours, etc.,

E. SHOBROOKE.

Our correspondent need not express reluctance at criticising any views we may express, we do not expect to escape criticism, and never write with that object in view. His criticism is perfectly fair, only he has rather misinterpreted what was written. Cross-breeding was described as a "retrograde step," not because it would affect the breeder of pure-bred stock, but because of its effect on the stock itself in the years to come. It is retrograde because it is shirking the main problem, and requires neither experience nor scientific knowledge. We know that we get good production from first cross pullets, knew it a generation ago; what will the laying test prove then? Will it prove which is the best cross? Will it prove that the cross is a better producer than the pure? Will it encourage what can be the only means of improving the pure-bred stock in the country, viz., breeding for breed improvement? We have bred for heavy egg production for twenty years. To some extent our stock has deteriorated, as is often the case when breeding for a specific factor to the exclusion of other factors of equal importance; but we are recognising these mistakes, and already there is a decided improvement. Would it not have been more to the purpose to have raised the standard of our laying tests, and by such means have encouraged breeders to breed for a higher standard? We know you can breed for type, constitutional vigour, body size, size of egg and heavy production, and combine these in the individual. Would this have not been worth fighting for rather than shirking the problem, taking a step which even its keenest advocates cannot claim to be progressive? With regard to the comments in the "Daily Mail," we criticised these because they were an endeavour to bolster up the cross-bred test at the expense of the pure breeds. Moreover, these comments were not made as the result of the test, for it has not yet taken place. The statement to which we took exception was as follows:—

> "The justification of this test is the fact that many of the pure breeds have become increasingly liable to disease, more difficult to rear, and less productive."

That statement is not true in any particular, and it will do a great amount of mischief, particularly abroad.—(Editor.)

PURE v. CROSS-BREEDS.

To the Editor of "Eggs."

Dear Mr. Newman,—Your Editorial in this week's "Eggs" inspires me to give you my experience with first-cross birds, and I think bears out what you say.

I have 130 (Brown Leghorn-Light Sussex) in one flock, and I am very disappointed with them as layers. They were reared with 150 White Leghorn chicks, in March, under a blue-flame hover. I do certainly not consider them hardier than the pure White Leghorns.

The Leghorns started to lay early in September, and have put up a wonderful record, but the cross birds are only just starting to lay properly, now that eggs are getting cheaper.

My opinion of them is that their best point is flying, in which capacity they even beat the Leghorn.

Yours truly,

R. A. MADDOCK.

P.S.—Broodiness is another bad feature with first-cross birds from the commercial egg farmer's standpoint. I have had many broody already this year.

LIME SALTS.

To the Editor of "Eggs."

Dear Sir,—Re the letter of C. S. Roscoe, I should like to make a few remarks.

He says that if one watered milk containing 5 per cent. fat down to 3 per cent., the sample would come up to Government standard, as regards fat. This is quite true, but what about the "solids" not fats? The Government standard is 8.5 per cent., and any watering of the milk can readily be detected as the "solids" vary very slightly.

If the percentage of fat, and the specific gravity is taken, the percentage "solids" may be calculated thus:—

"Solids" not fats, 25 x SG. (in lactometer degrees) + 1.2 x % fat + .14.

The point which I would like to emphasise, however, is in connection with this calcium problem.

How can rickets in children, fed on cows' milk, be caused by the lack of C a O, when cows' milk contains about five to six times as much as is present in human milk?

The lime content of cows' milk is about .16%; of human milk .03%.

Even if one allowed 50% variation in the quantity of C a O it would not be lower than the average lime content of human milk.

It has been suggested, and perhaps rightly so, that rickets in children may be traced to pasteurised or sterilised milk. When milk is so treated the C a O is partially precipitated.

Yours faithfully,

D. P. WRIGHT.

What We Want

A PLEA FOR THE UNEDUCATED EX-SERVICE MAN.

By "EX-AIRMAN."

I venture to pen this article as an ex-service poultryman, and a reader who has profited much from a long perusal of "Eggs," in the hope that it will put very forcibly before this paper's large and influential body of readers some of the things that are making and **do make** such a strong appeal to those of my comrades who are endeavouring, under many handicaps, to get a reasonable living out of their birds.

Lately I have had unique opportunities of getting among these fellows and hearing what they say and think, and thus gauging what it is that would be most helpful and profitable for them. Many of them, remember, dear readers, have not had much education, and it is the simple "brass tack" idea that is easily understood that touches them. Many of the purely scientific articles that have appeared in the Poultry Press lately do, I am afraid, leave these chaps rather cold because of their irrelevance—from **their point of view**—to the harder commercial side of the various questions. These men put their case rather forcibly, thus:—

"We have the very greatest respect for science and its undoubted bearing on such vital matters as feeding for eggs, proper nutrition, healthy stock-rearing, etc., but reams have been written on more or less abstruse matters that do **not** appeal to commercial poultrymen, and that was one reason why the Poultry Institute Fund was not supported as well as it should have been. Many of us felt that it would have been far better to have devoted some, at least, of the money to strictly commercial problems. I will endeavour to enumerate some of these as they appeal to us:—

(1) Better control of the egg market.

(2) The cost of foodstuffs.

(3) Lack of co-operative endeavour in many districts.

(4) The strife between utility and fancy wings of the industry.

(5) Proper educational propaganda as to basic charges of starting poultry plants.

(6) The provision of land.

(7) Railway charges on foods and stock.

(8) Suitable and easily workable plans of the right type of houses for the various stages of poultry culture.

(9) A more vigorous support of the Merchandise Marks' Act as it affects eggs.

(10) Instructions as to how to prepare balance sheets (with examples), fit for presentation when Income Tax Returns have to be made.

I will try to be as concise as possible in dealing in turn with each of these ten items. With regard to better control of the egg market. Many of us have sadly lacked instructions as to packing, grading, and selling of eggs, with the result that foreigners have stolen the markets and English eggs pass through too many hands ere reaching the consumer, and prices vary greatly all over different parts of the country. Lancashire has started fixing prices, but what of other counties?

Then, next, is the cost of foodstuffs. Any intelligent fellow who reads the corn returns with the least iota of gumption stands aghast at the great difference between the "ex-ship" prices of food and the price his corn merchant asks him. Surely something could have been done to deal with this matter by co-operation? Why not start co-operative Corn Stores, who could buy in hundreds of tons and so supply us at a paying figure? This would have been money well spent and would have brought in a slight profit. The third question—the lack of co-operative endeavour is a searching and urgent one. Look what the Framlingham Society has done! Why cannot other counties be **educated** to go and do likewise? Yet another thing that leaves we commercial men cold is the futile bickering that fills the columns of the Press between utility men and the fanciers. Wouldn't all this ink and reasoning be better spent in working out things that really matter from a "bread-and-butter" point of view? The fifth matter is one that confronts many of us who are utterly befogged by the multitude of wisdom(?) showered upon us, and which only serves to confuse men who are endeavouring to figure out basic charges necessary to starting up—i.e., cost of timber, how best to buy, etc. I pity the novice who opens some of our papers and is trying to figure things out for himself. A booklet issued on this subject—among others—by the National Poultry Council, and bearing their imprimatur would have a record sale. Next there comes the vexed question of obtaining land. The way we have been let down in this respect is a national scandal. When we were demobbed, we were given papers telling us to register our names and we should stand a reasonable chance of getting a small slice of the land we had helped to keep safe. Thousands of our names are still on that waiting list, and likely to stay there till the "crack of doom." Those who stayed behind it seems got all the plums from a totally inadequately-prepared cake. Another burning question among us is that of rail charges on food and stock. The great railway companies of this land had an enormous compensation from Government—out of our pockets, too—for so-called "war losses and expenses." Could not some of this have gone to reduce freights for us, so that we should be able to live and not go on the dole? Some attempts have been made, but not nearly enough. The eighth question is one that would help those starting up. A booklet of working plans would save many a fellow from wasting his little capital on houses of a wrong type, without proper ventilations, etc. The building of commercial laying houses, pullet-rearing houses, brooder houses, etc., is no child's play if they are not to be fruitful centres of roup and other diseases. A cheap booklet of workable plans is badly required. It's no good being a handy fellow if you don't know what plan to build to.

The Merchandise Marks' Act should have been backed financially before we had an institute. It's no good having this much-desired Scientific Institution if the industry it was started to improve and educate is snuffed out by foreign competition. The Jewish egg merchants and importing fraternity are well organised to wreck this measure. What are we going to do to frustrate these people? Messrs. "Sheeney and Co." have gone to great pains to beat us; and they will, too, if we don't counter them hard. The last item is one that has puzzled the brains of many a one when confronted with his Income Tax Returns. A sample sheet giving simple and easily understood instructions would indeed be a great boon to many, and save no end of heart-burning and annoyance, and, perhaps, loss through ignorance of the way to prepare a proper return and check the demands made, and the schedule under which they are chargeable.

I commend these simple recommendations to the National Poultry Parliament, who may perhaps be able to help us out in some of them, and let us know what support and enlightenment we can look forward to in matters that so seriously affect the truly commercial side of our great industry.

MIRFIELD AND DISTRICT POULTRY-KEEPERS' ASSOCIATION.

FIRST MONTH'S REPORT.

The first monthly report of the Laying Test, held at Roberttown Poultry Farm, closed on November 23rd. A few birds, which were laying on arrival at the test, are going through a slight moult. In the W. Wyandottes' sections several birds are suffering from colds. No. 72, 78, 79, 80, 81, 81, 82, 86, 87, 156 (White Leghorn, No. 4), R.I. Red No. 105, Pullet No 77 died on the 19th inst.

Egg production is only moderate. The best individual score is by pullet No. 117, score 22, followed by No. 126, score 21.

The following is the position to date. (No. 161 broody):—

White Leghorn, Pen Section. Three Birds.—Mrs. H. Poole, 30 pts.; Mr. A. G. V. Ermen, 16 pts.; Miss Mitchell, 15 pts.

White Wyandottes, Pen Section. Three Birds.—Mrs. H. Poole, 8 pts.; Mr. A. D. Prince, 6 pts.; Mr. A. Blackburn, 4 pts.

Any Other Variety, Heavy Pen Section. Three Birds.—Mr. T. Burnett (L.S.), 49 pts.; Mr. W. Horsley (Buff Rocks), 47 pts.; Mr. P. Furness (R.I. Reds), 23 pts.

White Leghorn, Single Birds.—Mr. W. Horsley, 21 pts.; Mr. A. Blackburn, 18 pts.; Mr. H. Dyson, 12 pts.

White Wyandotte. Single Bird.—Ledgard and Brown, 14 pts.; Mr. W. Horsley, 11 pts.; Mr. H. Crowther, 7 pts.

Any Other Variety, Heavy Single Bird.—Mr. W. Saxton (R.I.R.), 4 pts.; Mr. J. A. Thackrah, 1 pt.; Mr. J. W. Brown, 1 pt.

CORNWALL COUNTY EGG-LAYING TRIALS.

The following are the leading pens in each section during the first month, October 15th to November 11th, 1924. Figures are eggs and points respectively:—

Wyandottes.—1, Messrs. Ford and Son, 62, 664; 2, Mr. W. Ellery, 68, 599; 3, Mr. T. H. Rowe, 47, 492

Sussex.—1, Mr. R. D. Duff, 94, 905; 2, Major E. Williams, 42, 426; 3, Mr. H. Goodman, 35, 361.

Rhode Island Reds.—1, Mr. P. Moss, 40, 438; 2, Mr. T. H. Rowe, 35, 361; 3, Mr. T. H. Bowden, 8, 88.

Leghorns.—1, Major E. Stocker, 75, 733; 2, Sir Chas. McGrigor, 64, 628; 3, Mr. M. Toms, 74, 588.

A.O. Breeds.—1, Mr. H. Carveth (Australorps), 69, 700; 2, Vice-Admiral Caley (Exchequer Leghorns), 58, 542; 3, Sir Chas. McGrigor La Bresse), 59, 494.

Despite the inclement weather prevailing during the month, he health of the birds has been excellent, but many birds are moulting, due, no doubt, to the change when coming to the aying stage.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

CHAPTER VI.

THE BUSINESS END.

As in all other enterprises in which mankind engages, the Business End is the really important side of "Egg Machines."

If the expenses of any business outweigh the incomings, then "phut" goes that business AS a business. It may be kept on as a HOBBY, if the owner has a pleasing Bank balance to rely on, but it is no longer a business.

Far too many people who engage in poultry-keeping refuse to seriously consider the importance of knowing exactly how they are doing financially in this profession. To such the necessity of accurate book-keeping must be made clear.

Book-keeping of a kind dates back to very early ages—to the days when barterings between mankind became too numerous to be retained in the memory alone. The Romans knew something about the terms, "debit" and "credit," but it was not until the fifteenth century that book-keeping became an art—in other words, until the system of DOUBLE ENTRY was introduced in Italy, with such successful results that the Merchant Princes of Venice and other Italian cities soon became the financial magnates of the world.

Single Entry book-keeping is a manifestly crude and imperfect system, and yet very many people of to-day are so terrified by the imagined difficulties of Double Entry that they refuse to be introduced to the Bogie.

I will try to dispel these terrors by a simple explanation of the mysterious art.

To begin with, the basic principle of Double Entry is founded on the obvious truth that in all financial transactions there are TWO sides—a purchase by one person involves a sale by some other person; you cannot buy even a pound of butter unless someone else is prepared to sell it to you. This is a self-evident truth, and double entry Book-keeping simply means taking account of BOTH sides of every transaction.

Now for the books required.

The following are the main books used in commercial accountancy:—

(a) Day book (or Sales book).

(b) Invoice book (or Purchase book).

(c) Cash book.

(d) Journal.

(e) Ledger.

In practise, however, I have found it simpler to combine (a) and (b) into one book, which is really the journal in the above list. My system, therefore, entails three necessary books, viz.:—

(a) The Journal (often also called the Day book).

(b) The Cash book.

(c) The Ledger.

The functions of these books are as follows:—

The Journal (or Day Book) takes account of every purchase or sale made, giving full particulars of such sale, including, of course, the money involved by each transaction.

The Cash book deals only with cash paid into, or out of, the business.

The Ledger finally collects all the transactions recorded primarily in the Journal and Cash book.

According to the strict rules of Book-keeping ALL transactions in the Ledger should be taken from the Journal, but in practise it saves time to "double entry" cash transactions direct from the Cash book into the Ledger.

It is a very great advantage to have your Ledger a "loose-leaf" book, but there is no great object in having either of your other books "loose-leaf."

Remember that all transactions should be noted DIRECTLY they occur (in either the Journal or the Cash book, as the case may be), but the transference of these entries into the Ledger can be made at any time later on, when you have leisure.

If you have done a Pelman Course you can remember this by "Ledger-Leisure."

Now I will assume that you are going to start your Poultry Farm, and want to start your books correctly at the same time. If your farm is already in existence, the same books will be needed, but you will have to value your existing stock of poultry houses, birds, etc., and enter them on the Debtor, or Dr., side of your capital account in the new books.

We will take the Journal first, and make a few typical entries:—

Mr. A.'s POULTRY FARM.

JOURNAL.

			£ s. d.
	1.1.1925.		
1/100	Bought of James Brown, High Street, Ludlow:— One 250-Egg Gloucester Incubator		13 10 0
	2.1.1925.		
	Bought of Mrs. White, The Cottage, Brighton:— 20 doz. W. Leghorn Hatching Eggs, at 5/- per doz.		5 0 0
	2.1.1925.		
	Bought of A. Green, Park Lodge, Exmouth:— 30 W. Leghorn 1923 Hens, at 4s. each		6 0 0
	3.1.1925.		
	Bought John Smart and Son, Sidmouth:— 10 cwt. Indian corn, at 12/- cwt. ... ... 30 st. oats, at 1/- st ...	6 0 0 1 10 0	7 10 0
	4.1.1925.		
	Sold to John Smart and Son, Sidmouth:— 14 empty bags at 6d. each ...		0 7 0
	4.1.1925.		
2/100	Bought of Sam Dull, Oxford Street, London:— 2 Rear-all Brooders (100-chick), at £3 each		6 0 0

That will do as a start. I presume that, like myself, you have successfully managed to get as many goods as possible on credit, so you have not yet paid for any of these things except the "Rear-all" Brooder, which Sam Dull was bright enough to insist on being paid for before delivery, so this item will involve a Cash Book entry as well, right away.

We will now start our Cash Book. Remember that in this book (and also in the Ledger) you must have a money column on the opposite side of each page, or alternatively on opposite pages. The column on the right is always headed Cr. (Creditor), that on the left Dr. (Debtor). You, yourself, who make the entries, are looked on merely as a Cashier for the business, so that all money received by you out of the business is a debt which you owe the business (even if it is entirely your own business), and all money paid out by you on behalf of the business is a credit to you. Hence all money paid out goes on the right hand (C.) side, and all money received is entered on the left hand (Dr.) side.

Many people get puzzled by this, as at first sight it looks wrong, but you must try and grasp the reason before you start keeping your books.

(To be continued.)

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

2nd Monthly Report for the period November 3rd-30th, 1924.

The second monthly period of the above Trials terminated on November 30th and a very satisfactory yield of eggs (1,556) was obtained. This gives an average of 14 eggs per bird for all the pullets competing, although 15 birds have not laid an egg during the month. The total of eggs laid during the eight weeks is 2,986, of which number over 68 per cent. were first grade. The best pen is still Mrs. E. Ball's R.I. Reds, the six pullets having laid 267 eggs, all but one being 1st grade, to the value fo £3 11s. 6¾d. (wholesale rates) in the eight weeks. Mrs. R. Crawford's pen of White Leghorns still lead in the Light breed section with 190 eggs, valued at £2 10s. 4½d., to their credit. The weather during the period has not been unfavourable to egg production, and the health of all the birds has not been good. No deaths have occurred during the eight weeks.

The record and position of each pen is given below:—

Section 1.—Division A.—Light Breeds (6 birds).—Mrs. R. Crawford (W.L.), 190 eggs; Crawford and Dowell (W.L.), 162 eggs; J. and A. Moore (B.L.), 108 eggs; Alan Kemp (B.L.), 151 eggs.

Section 1.—Division B.—Heavy Breeds (6 birds).—Mrs. E. Ball (R.I.R.), 267 eggs; C. B. Payne (R.I.R.), 223 eggs; T. F. Wildman (R.I.R.), 202 eggs; Lady Dorothy Fraser (R.I.R.), 183 eggs; Crawford and Dowell (R.I.R.), 193 eggs; Miss G. Belgrove (R.I.R.), 177 eggs.

Section 2.—Any Breed (2 birds).—J. T. Kidger (W.W.), 91 eggs; Geo. Gilliver (W.W.), 72 eggs; Geo. Stevens (An.), 46 eggs; Miss D. Walton (W.L.), 27 eggs; Mrs. Gilliver (R.I.R.), 18 eggs.

ANSWERS TO QUERIES—Continued.

N. R. D. (Hitchin). Bought expensive sittings of Light Sussex eggs in March, hatching was only moderate. Now he is disgusted to find that three of the pullets have yellow legs, and says he bought pure breeds and not a cross. He has written a furious letter to the breeder, who indignantly denies the accusation of an out-cross, and apparently resents N.R.D.'s letter. It does not follow that there has been an out-cross, the Light Brahma was used in the make up of the Light Sussex, and this breed has yellow legs ; it is probably a case of reversion. I cannot answer my correspondent's further question as to the legal liability of the breeder.

R. P. (Walton Heath). Sends an egg with a solidified yolk, and asks an explanation. It was laid by a Wyandotte hen. He gives particulars of his feeding, which, although not the direct cause of the trouble, needs modification, the combination of barley meal, maize meal and ground oats not being very desirable. The egg was retained too long in the oviduct, possibly due to the hen being in an overfat condition. It would be advisable to omit either barley meal or maize meal from the mash. Drastic changes in the feeding would be a mistake, as the flock should not be treated for the individual.

East Anglian (Essex). Runs White Wyandottes on stiff clay in a very exposed position, with results which are not satisfactory, has difficulty in rearing and eggs are none too plentiful, is anxious to try another breed, and wants to know which one ; has also a hen which "goes blue in the comb" when feeding, and asks what is the matter. White Wyandottes should do well even on stiff clay and in such a position as described, without there is any inherent weakness in the strain, which in this case there appears to be. Buff Rocks would be a useful breed for the conditions named, it would be difficult to find a better. The hen is suffering from heart trouble ; it would be useless to treat her.

INcub. (Worcester). Is seriously worried. Last season his hatching results were very bad, a high percentage of infertiles and dead-in-shell, but these are the only details he sends except the information that the machine was a tank and run in a cellar. Not very helpful, details sent are often so scanty that there is nothing on which to form an opinion. The percentage of infertiles makes one think the stock birds were at fault, that may have been due to immaturity or general mismanagement. This would necessarily affect hatchability, and as I have no details of the incubation I must leave it at that.

W. (N. Wales). Asks the old, old question as to whether he should mate the sire to his daughters, what do I think of Flech's chart, and how close can one go in breeding? W., the mating of the sire to his daughters can only result in the deterioration of the stock unless it is exceptional in every respect. In-breeding itself does not improve stock, it is the selection of the exceptional individual that does that. The object of in-breeding is to conserve the desired characters. If an out-cross is used there is danger that undesirable characters will be introduced which will prove dominant to those desired. In your case, to mate the sire to his daughters would result in the whole lot going to pot, because there is nothing exceptional in them. Flech's chart involves two forms of in-breeding, the sire to his daughters, the dam to her sons. It answers very well for exhibition breeders, but when breeding for egg production it should not be considered. How close you can mate does not depend wholly on the relationship. With very exceptional individuals even brother to sister has given the best results, with inferior individuals a much more remote relationship would spell disaster.

K. M. (Market Harborough). Has pullets which are suffering from diarrhoea; eggs are few and far between and some of the birds have moulted, sends samples of his foods, which include kiln, dried wheat, fish meal, ground oats and barley meal. There is nothing wrong with the wheat, the barley is coarsely ground, and full of husk, which is likely to cause serious digestive trouble ; the ground oats are inferior, but the real cause of the trouble is the fish meal, which is very smelly and contains an excess of oil. As the price of fish meal is high it attracts a lot of inferior samples to the market, and this is one of them. It is only suitable for manurial purposes, and K.M. should not feed any more of it. A mild dose of Epsom salts and a change of diet should put matters right.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

Third Annual Laying Competition, held at the Lancashire County Council Farm, Hutton, under the supervision of Mr. C. H. Dobbin, the County Poultry Instructor.

1st Month's Report, 16th October to 12th November, 1924.

The scoring for this period is eight points for a first-grade egg, 1⅞ oz., six points for a second-grade egg, 1⅝ oz., four points for a third-grade egg not less than 1½ oz.

The following are the leading pens in each section, showing eggs and points respectively:—

Large Breeders (Three Birds).—Section 1.—White Leghorns.— E. Cam, 60, 460; S. Street-Porter, 57, 326; J. Sutton, 50, 316; W. Barron, 47, 312; H. Gabbott, 38, 294; A. C. Harrison, 45, 292.

Section 2.—Black Leghorns and Anconas.—O. Rawlinson, 51, 324; W. Hamnett, 39, 272; J. P. Willacy, 13, 104; Mrs. J. H. Hill, 8, 60; F. Lord, 9, 40; T. W. Gardner, 4, 21.

Section 3.—White Wyandottes.—P. Williamson, 58, 516; J. R. Dawson, 56, 410; H. Sutton and Sons, 57, 380; W. Barron, 58, 336; W. Hamnett, 42, 334; A. C. Harrison, 40, 272.

Section 4.—Rhode Island Reds and A.O.V. Heavy.—A. Willcocks, 63, 364; A. T. Walker, 50, 356; F. Harvey, 47, 350; H. Sutton and Sons, 50, 342; Basnett, 40, 310; T. Braithwaite, 39, 308.

Small Breeders (Single Birds).—Section 1.—Light Breeds.— J. Stanley, 20, 158; G. A. Wolstenholme, 21, 136; W. Ashton, 17, 132; F. Wilkinson, 20, 122; J. W. Pearson, 15, 112; J. Hootton, 20, 94.

Section 2.—Heavy Breeds.—J. W. Pearson, 20, 154; A. Spencer, 19, 146; H. Harrison, 20, 132; J. Farron, 16, 110; C. P. Gough, 19, 106; A. D. Walton, 12, 86.

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

OFF THE TRACK.—I am launching an arrow at random, yet not quite left to chance, because I think amongst those interested in the "fruit-growing notes" there may also be some who read them because they grow various fruits and vegetables and take a general all-round interest in a large garden, and this is very often found amongst poultry-keepers and lovers of the country life.

Therefore, this week I am digressing from the commercial poultry and fruit alliance, and hoping to hit a spot that I trust will be at least of equal interest.

The hobby growing of a few tomatoes out of doors, or in a small cold greenhouse, is a favourite thing. Perhaps some of my arrows of experience may find a ring or bull's-eye.

I think a common mistake is trying to raise one's own plants when we have not the sufficiently heated greenhouses, and the result is that, although we often do get nice little plants, they are too late for successful out-of-door culture, and too late for obtaining good crops even in a cold greenhouse.

When we take into consideration the cost and labour of raising our own seedlings, I think it is cheaper to buy sturdy young plants, for even a slightly extra cost is well covered by the extra cluster of fruit gained from planting out the early raised, but properly hardened off young plants purchased from the reliable nurseryman.

We see a number of sickly weaklings displayed for sale (and sold) that have come almost direct from the hot-houses (sometimes crowded in boxes), and, of course, the check to them when planted out of doors (directly purchased, and often early in May) is so great that they take a long time to recover. The end of May, or first week in June, is the best time.

Certainly get your plants early in May if you can keep them inside, or in a cold frame, and so gradually harden off for planting out.

As regards the method of cultivation, and number of cluster to aim for. I think that for out of doors, the double stem with only two clusters on each is best, because unless we get exceptionally good sunny summers it is difficult to ripen more.

To grow against a wall, or shelter, is a very great help, and likewise to train the stems obliquely, so keeping the plants nearer the warm earth, is a further aid.

There is no need to remove foliage until near time of ripening off, when this checking the growth it naturally assists; so also will a slight lifting of plants and consequent checking of root action.

Respecting the growth of tomatoes in a cold greenhouse. Here are a few more points:—

(1) I do not believe in the excessive defoliating of the plants we so often see, or too liberal a supply of nitrogenous manures, and I believe that the fine sweet flavour I have with my tomatoes is partly due to this restrained treatment plus potash. I like bags of soot put into the inside water tank as a mild manure (I have heard of big growers who use it as their chief manure), and I like plenty of wood ashes mixed into the soil as well as using sulphate of potash.

(2) I confirm the experiences of others that it is very important to see that during the winter months we thoroughly soak the subsoil in the greenhouses, for we often fail to realise the amount of moisture used up during the time the plants are growing and that the subsoil does not get the soaking that outside ground has from rains during late autumn and winter months. Try and realise what a loss this means to the subsoil of greenhouses. By the by, I prefer plants in beds rather than in pots.

(3) When no heat is given it is best to stop all heads before the end of July and concentrate on swelling and ripening off all blossoms set by that date. The fruiting of a less vigorous growing plant is often helped by stopping the head (two leaves above the flower) and then letting one of the top laterals grow to extend the plant.

(4) Unfortunately, unfavourable weather will sometimes bring an attack of mildew, and then directly detected green sulphur powder blown amongst the plants with small bellows made for the purpose will check this, or I like "Goth" as a liquid spray. Some strongly advise Bordeaux mixture.

I had a small outbreak of "White Fly," and, without taking the usually advised precautions, it stopped, and I wondered if "Goth" did the trick, for I have seen none this year.

As I want to give, this week, an ANSWER TO A QUERY, because it may be of interest to many, I will continue these "off the track" remarks next time.

POULTRY MANURE.—Concerning the mixing of Superphosphates and Potash with droppings to make a more complete or "balanced" fertiliser for fruit trees, and storing same, also, whether the phosphates would cause a loss of ammonia.

Now, speaking personally, I generally apply the artificials and the "droppings" independently of one another, as, so far, I can always use up the latter while fresh and need not dry and store, but there should be no fear of any "loss" if the poultry manure is thoroughly dry, when the chemicals are added. In fact, the action of the superphosphates would (on account of the acid nature of the fertiliser) fix the ammonia and prevent its escape.

Should the poultry manure not have been sufficiently dried off before mixing in the chemicals for storing, then any serious loss of ammonia would be easily detected by the smell this gas would give off, in which case add extra superphosphates when turning over the heaps.

We have not any definite experiments on which to base what are the best proportions to use when mixing, but as a good general guide it is about :—

10 parts poultry manure.
2 parts superphosphates.
1 part sulphate of potash.

This mixture would contain, roughly, 8 per cent. Phosphates, 1.5 per cent. Nitrogen, 1.5 per cent. Potash. I like to be rather more generous with the potash.

If this chemical is used in the form of "Kainit," as recommended for this special mixing (because a still further possible help in retaining the ammonia), it would require about four parts instead of one, but, being cheaper, the cost comes out practically the same.

ARTIFICIAL LIGHTING.

To the Editor of "Eggs."

Dear Mr. Newman,—I have read the recent articles in "Eggs" on artificial lighting with much interest. I have been experimenting with electric light on birds for some time, and have tried lighting at different hours.

My whole object in lighting is to provide my birds with sufficient nourishment to carry them through the long winter nights, and not to force them.

My birds are given a scratch grain feed at 7.15 a.m., then again at 3.30 p.m.; and at 8.30 p.m. the electric lights are switched on and they get a last grain feed, being allowed to feed for one hour only when the lights are dimmed and turned out.

Dry mash hoppers are open all day.

I have tried leaving the lights on from dusk till 9 p.m., but I think this only upsets the birds' nervous systems. I found that, no matter how bright the lights were, most of the birds got up on the perches about 6.30 p.m., when they were full and very few came down to feed again before the lights went out at 9 p.m., so consequently were hungry again about 1 a.m., but, feeding at 8.30 p.m. to 9.30 p.m. only, the birds, having had a sleep since dark, are just ravenous and have a full crop to sustain them till just before daylight.

Yours truly,
R. A. MADDOCK.

Farfield Poultry Farm, Farsley, near Leeds.

Dear Sir,—I enclose P.O. 1s. 4½d. for your work, "Handling and Observation," and I hope I can appreciate it as much as I do you fine paper, "Eggs," which puts all other papers in the shade.

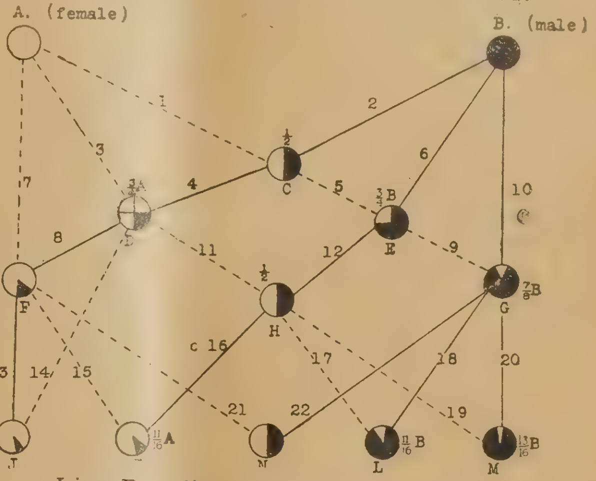
Yours sincerely.
(Signed) H. PROSTER.

On Breeding

By G. C. HESELTINE.

LINE-BREEDING IV.—(Continued).

Properly conducted line-breeding—that is, line-breeding according to a pre-conceived plan—has for one of its objects the formation of several "lines" in the strain which may be bred one with the other for many years if necessary without the introduction of outside blood. It was explained in the preceding article on this subject that, although the lines are all bred from one original pair of birds, they may be kept fairly widely separated as far as blood relationship is concerned. This will be seen more clearly from a typical chart, such as the one known as "Felch's," which has had considerable vogue amongst breeders in this country as well as in America, where it was first used.



Line Breeding Chart, after Felch.

In the chart the clear circle represents the original female, and the black circle the original male, lettered A. and B. respectively. If we mate these together we get C., which is $\frac{1}{2}$A. and $\frac{1}{2}$B. The dotted lines represent the matings of female and the full lines of male. Next mate the original female A. (by line 3) with her son (by line 4), and we get D., which is $\frac{3}{4}$A. [that is (A + $\frac{1}{2}$A.) ÷ 2]. Similarly by mating original male B. (by line 6) with a daughter from the first cross C. (by line 5) we get E., which is $\frac{3}{4}$B. By mating D. with E. (by lines 11 and 12) we get H., which is again $\frac{1}{2}$ the blood of A. and $\frac{1}{2}$ the blood of B., this being identical with C.

We have now the beginning of three lines, one B., which contains a preponderance of the blood of the original female; another E., which contains a preponderance of the blood of the original male, and C. or H., which has equal proportions of the blood of both original parents. By continuing the process a step further, we get J. and M., which are still more widely divergent in blood relationship, and by proceeding in this manner it will be seen that the two lines on the outside of the chart become more and more identical in blood relationship with the originals at the top of those lines. These outside lines are known from this fact as the female line and the male line.

It is obvious that such a procedure as this enables the breeder to keep the lines apart. Although he is mating within the same strain, he can still make matings, such as J. with M., which are well apart in blood relationship.

By avoiding in these matings any birds which diverge from the standard at which you are aiming, the number of divergent birds, or variations from your ideal, will become less and less, and the characters which you put into each mating will become deeper and deeper impressed in the stock with each successive mating. The strain will achieve a fixed character, and the power to stamp that character on any stock into which it is mated, and which has not been so thoroughly line-bred.

It must not be thought that the expressions, such as $\frac{3}{4}$A. or $\frac{1}{2}$A. + $\frac{1}{2}$B., give any indication of the outward appearance of the stock; they *may* do so, but such a circumstance would be, for want of a better term, a coincidence.

The expressions $\frac{3}{4}$A., etc., are purely arbitrary to express relationship.

The factors which determined the outward appearance of the birds (e.g., rose comb, etc.), are inherited in Mendelian fashion, more or less independently of blood relationships, although it is clear that since the original pair of birds were pure-bred true to one type, the chances of variation, as far as actual factors is concerned, will be very small. The further line breeding is carried, the more alike will all the birds in the strain become. One of the chief advantages in the process has been to continue breeding sufficiently far apart in blood relationship to avoid impairing the stamina of the stock, and to do so without importing blood which might cause a disturbance of factors resulting in variation.

It may now be more clear why the accuracy of records was so much insisted upon. A serious mistake in recording might well wreck the whole scheme, and the breeder would find himself making what practically amounts to brother and sister matings—with grave risk of completely ruining the vigour and soundness of the stock.

The above chart is merely given as an example. Once the principle is understood the breeder can devise a plan for himself to fit his own facilities for breeding. He must be *able* to do so to provide against a possible breakdown of the original plan owing to the death of particular birds required.

55, Endymion Road, Brixton Hill, S.W.2.

Dear Sir,—I have long been a reader of "Eggs," and most of the other poultry papers, and must say I find the former the most interesting and instructive of all. Further every purchase of stock and appliances which I have made from advertisers in "Eggs" has been entirely satisfactory, which is more that I can say about the others.

With best wishes for its continued success.

Yours faithfully,

(Signed) C. F. CARTER.

POST MORTEMS—Continued.

E. S. The cause in the case of the Ancona pullet was internal haemorrhage, due to the rupture of an egg tumour that had become twisted on its stalk and so severed the blood vessels supplying it. The cause of these tumours is unknown, so that they cannot be forestalled or predicted. The bird had not yet commenced to lay. Under the new arrangements all reports are sent direct by post and not through the paper. This arrangement was decided upon, as the delay, especially in the case of infectious diseases, often made the report useless from a practical point of view.

R. B. The cause in the case of the hen was blood poisoning, due to the death and decomposition of two yolks that were still attached to the ovarium. The cause of these yolk deaths is still undetermined, but what evidence we have at presents points to a bacterial infection. Please note that reports of post-mortems are no longer made through the columns of the paper, but direct to clients, thus saving invaluable time should the disease prove to be infectious.

E. The post-mortem examination of the White Wyandotte pullet showed the cause of the trouble to be heart disease. The auricles of the heart were much distended and dilated, and this, of course, would account for the difficulty in moving quickly, etc. There was no other sign of disease, the other organs being healthy. As regards the young R.I.R. hen, it would, of course, not be possible to give a definite opinion, but I should regard it as extremely unlikely that she was suffering from cancer.

KEIGHLEY AND DISTRICT BRANCH OF S.P.B.A.

The Yorkshire Federation of Poultry Societies will hold their Annual General Meeting in the Co-operative Hall, Keighley, on December 20th, 1924, commencing at 3 p.m. All members of the Keighley and District Branch of S.P.B.A. are invited to attend, and will be seated in a space reserved for visitors. A **public** meeting will be held in the evening, commencing at 7 p.m., when Mr. Francis, Commissioner of Poultry to the Department of Agriculture, Whitehall, London, will give a lecture. His subject has not been definitely settled, but it is hoped it will be on his tour in Canada with lantern slides. Everyone interested will be welcome.

23, 8th Avenue, Bey Valley, Johannesburg.

Dear Sir,—Please receive my best thanks to you and the many contributors to your paper "Eggs" for the very valuable help received. I appreciate it and thank you.

Yours very respectfully,

(Signed) A. L. SUTHE.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Poultry, Ralph E., The Grange, Great Bentley, Colchester, Essex.
Campbell, Samuel, The Lorne, Fallahogey, Kilrea, Co. Derry.
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Elsom, Mrs. Wright, Manor House, Maltby-le-March, near Alford, Lincs.
Wallis, Miss M., c-o Miss Coulson, Home Farm, Babraham, Cambs.
Cooper, Ernest, 52, Cavendish Road, Colier's Wood, London, S.W.19.
Boothby, Miss D., Pine Patch, Higher Heath, Whitchurch, Salop.
Marval, John, 15, Church Road, Burnham-on-Crouch, Essex.

YORKSHIRE FEDERATION INTERNATIONAL LAYING TEST, HELD AT OTLEY, YORKS. FIRST FOUR WEEKS, OCTOBER 18th —NOVEMBER 14th, 1924.

Positions (first ten) for cups and other specials offered to members of Keighley and District Branch of the Scientific Poultry Breeders' Association in Class C., Section 9. Any variety, Light Breed, single bird section:—

1, Wm. Wharton, Keighley (W.L.), 21 eggs; 2, H. S. Kershaw, Keighley (W.L.), 20 eggs; 3, S. Hartley, Haworth, Keighley (W.L.), 20 eggs; 4, H. S. Kershaw, Keighley (W.L.), 17 eggs; J. Paget, Utley, Keighley (W.L.), 16 eggs; 5. Sam Preston, Haworth (W.L.), 15 eggs; 6, J. Fisher, Cowling, Keighley (Bk. L.), 13 eggs; 7, Smith Conyers, Lothersdale, Keighley (W.L.), 12 eggs; 8, H. Brown, Glusburn, Keighley (W.L.), 12 eggs; 9, F. Waddington, E. Morton, Bingley (W.L.), 11 eggs; 10, John Brown, Glusburn, Keighley (W.L.), 11 eggs.

Class C., Section 10. Any variety, Heavy Breed, Single Bird Section.—1, John Brown, Glusburn, Keighley (R.I.R.), 21 eggs; 2, Wright and Fortune, Keighley (W.W.), 18 eggs; 3, C. Macaulay, Keighley (R.I.R.), 18 eggs; Mrs Hawksworth, Pool, Leeds (W.W.), 17 eggs; 4, H. Downsborough, Bradshaw, Halifax (W.W.), 17 eggs; 5, Fred Slee, Keighley (Bf. R.), 14 eggs; 6, H. Downsborough, Bradshaw, Halifax (W.W.), 12 eggs; 7, Miss B. Taylor, Cullingworth (W.W.), 15 eggs; J. H. and W. Brayshaw, Cross Roads, Keighley (W.W.), 12 eggs; 8, H. Rawlinson, Horeham Road, Sussex (W.W.), 12 eggs; 9, Harry Nelson, Bradford (W.W.), 10 eggs; 10, J. H. and W. Brayshaw, Cross Roads, Keighley (Light Sussex), 5 eggs.

What our Readers think of "Eggs."

The Lodge, Copsewood Grange, Stoke, Coventry.

Dear Sir,—I would like to say how much I appreciate your helpful paper, which I have taken up again recently (about two months). I may say I have just started poultry as a business proposition in the nature of a side line to gardening, and, owing to pressure of work, cannot give the time to it which it deserves. However, so far, results are very gratifying, thanks to " Eggs."

I remain, yours faithfully,
(Signed) F. JESSUP.

21, Arthurdon Road, Brockley, S.E.4.

Dear Sir,—You may be interested to know that I have forsaken all other poultry journals, and cleave only unto " Eggs." I share the just appreciation of your other correspondents.

Yours faithfully,
(Signed) R. E. HOOK.

The Pinfold Poultry Farm, Tingewick, Bucks.

Dear Sir,—We tried all the poultry papers in turn until we found " Eggs," and since then we have been regular readers, as there was no other so useful to us.

Yours faithfully,
(Signed) R. and W. WICKENS.

Givenchy Poultry Farm, Madeley, Salop.

Dear Sir,—I should here like to express my appreciation of the good work done by the N.P.C., and also of the splendid work done by yourself and the members of your staff in the publication of " Eggs." I feel I must congratulate you on the wonderful strides you have made, and thank you for the value you give us for our 2d.

Wishing you greater success.

I am, your sincerely,
J. E. G. ASTON.

180, Crookes, Sheffield.

Dear Sir,—Please find enclosed P.O. for 5s. for the renewal of my membership in the above Association.

With best wishes for its continual helpfulness to all its members, great and small.

I should like also to express the same sentiments towards " Eggs," of which I am a continual reader.

I remain, yours sincerely,
(Signed) GEO. H. WARD.

" Sun Cottages," Burghfield Common, near Reading.

Dear Sir,—May I say that the previous S.P.B.A. pamphlets have proved of considerable help to me, and that " Eggs " is a weekly source of interest and enjoyment eagerly looked forward to. Wishing your Society increased membership and power in the forthcoming year (1925), and thanking you for excellent articles week by week.

I am, Sir, yours faithfully,
(Signed) H. E. VINER.

" Sundridge House," Marlborough Street,
Faringdon, Berks.

Dear Sir,—I feel I must write a word of appreciation regarding the valuable information received through " Eggs."

I have been using your feeding formulas from the Register, results being very satisfactory. Wishing the S.P.B.A. every success.

Believe me, yours respectfully,
(Signed) E. L. FOARD.

The Willows, Haydock.

Dear Sir,—I take " Eggs " weekly from my local newsagent, and out of the six papers I take it is the only one I can take and read from beginning to end.

Yours sincerely,
(Signed) A. PIMBLETT.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, December 5th, 1924.

GRAIN AND FEEDING STUFFS.—Lower prices are recorded for English wheat this week, quotations averaging 12s. 5d. per cwt. or 2d. less than last week. Supplies are fairly good, but demand is of a very moderate character. Imported wheats also show a general reduction on the week, No. 1 Manitoba ranging from 15s. 6d. to 15s. 11d. per cwt., as compared with 15s. 8d. to 16s. 2d. last week. Demand for the other cereals is dull, and in most cases quotations have fallen as compared with a week ago, although feeding barley and oats are reported as showing a somewhat firmer tendency in London.

Milling offals experience only a moderate enquiry and prices are again lower, especially for coarse middlings, which now average under £10 per ton, as compared with over £11 at the end of October. The reduction in the case of bran is not so substantial, amounting to about 8s. 6d. per ton. Lower prices are recorded for all kinds of oil cakes, which are in very quiet demand.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s; Hull, £3 12s; Liverpool, £8 15s; London, £8 7s. Broad Bran: Hull, £10 2s; London, £9 7s. Middlings—Fine (Imported): London, £10 7s.; Coarse (British): Bristol, £10 7s; Hull, £10 10s; Liverpool, £9 10s; London, £9 2s. Pollards (Imported): Bristol, £9; Hull, £8; Liverpool, £8 15s; London, £8 10s. Rice Bran: Bristol, £9 7s.; Liverpool, £9. MEAL.—Barley Meal: Bristol, £12 15s; Hull, £13; London, £13. Maize Meal: Bristol, £12 5s; Hull, £11 6s; Liverpool, £11 7s; London, £11 10s. Maize Meal (S. African): Liverpool, £11 7s. Maize Germ Meal: Bristol, £12 5s. Hull, £11 10s; London, £11 10s. Maize Gluten Feed: Bristol, £12 5s; London, £11 10s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s: Hull, £13 18s; London, £14, Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £21.

EGGS AND DEAD POULTRY.

English eggs are in larger supply and cheaper, while all imported descriptions, especially the best grades, meet a slow trade as buyers are purchasing cautiously on a falling market. Large supplies of English and imported poultry are reported to be arriving in London, but trade is inactive and lower prices are taken to clear stocks. First quality English turkeys are quoted at 1s. 9d. per lb. in London, but prospects for the Christmas trade are at present uncertain. Prices of imported turkeys in London are given in the notes below, and it will be seen that supplies are available from Ireland, France, Italy, Hungary and Argentina.

Week-end Prices—Eggs (per 120): British: 32s 6d, 30s 0d; Irish: 27s 6d, 26s 0d; Danish: 31s 6d, 28s 0d; Dutch: 31s 6d, 28s 0d; Australian: 24s 0d, 23s 6d; Belgian: 30s 0d, 27s 6d; Italian: 25s 6d, 23s 0d; Egyptian: 13s 0d, 12s 6d; South African: 22s 6d, 18s 9d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 8d, 1s 5d; Irish: 1s 2d, 1s 0d; Others: 1s 3d, 1s 2d. Ducks: 1s 2d, 11d. Geese: 1s 2d, 10d. Turkeys: 1s 9d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 3s 0d; Second, 2s 10d. Birmingham: First, 3s 6d; Second, 3s 0d. Bridgwater: First, 3s 3d; Second, 3s 2d. Carlisle: First, 3s 4d. Chelmsford: First, 3s 1¼d; Second, 2s 8½d. Denbigh: First, 3s 2d; Second, 3s 0d. Derby: First, 3s 6d. Dorchester: First, 3s 2d. Exeter: First, 3s 3d. Hereford: First, 3s 0d. Ipswich: First, 3s 6d; Second, 3s 3d. King's Lynn: First, 3s 0d; Second, 2s 9d. Lincoln: First, 3s 6d. Llandilo: First, 3s 4d. Newport (Mon.): First, 3s 6d; Second, 3s 3d. Norwich: First, 3s 3d; Second, 2s 8d. Oswestry: First, 2s 9d; Second, 2s 7d. Penzance: First, 3s 0d; Second, 2s 9d. St. Ives (Hunts): First, 3s 1½d; Second, 3s 0d. Salisbury: First, 2s 8d; Second, 2s 5d. Shrewsbury: First, 3s 6d; Second, 3s 3d. Skipton: First, 3s 6d. Truro: First, 3s 2d. York: First, 3s 9d; Second, 3s 8d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 9d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 4d; Second, 1s 3d. Ipswich: First, 1s 8d; Second, 1s 6d. Lincoln: First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Truro: First, 1s 5d. York: First, *5s 6d; Second, *4s 0d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s. 3d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Llandilo: First, 1s 6d; Second, 1s 3d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. York: First, *6s 0d; Second, *5s 0d.

*Per Head.

“Eggs.”

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, December 10th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of “Eggs” to their poultry-keeping friends.

Subscription to “EGGS,” 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches. Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, “Eggs,” 94. Farncombe Street, London, S.E.16. Telephone HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of “Eggs,” it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association

WEDNESDAY, DECEMBER 17th, 1924.

Editorial.

THE MARKETING OF EGGS.

The Marketing of Eggs Act, passed last session by the Parliament of Northern Ireland, becomes operative as from the 1st January, 1925. The rules which have been framed under this Statute, and which will henceforth govern the export of Ulster eggs, have for their purpose the re-organisation of the industry and the improvement of the quality of the eggs and the conditions of marketing.

The Act is an innovation in the British Isles. It marks the commencement of a campaign to safeguard the interests of poultry-keepers, wholesale and retail merchants, and the general public. For some considerable time complaints have been made that the condition and quality of Ulster eggs reaching English and Scotch markets have not been beyond reproach. The removal of this stigma was desired by all Ulster agriculturists and egg merchants generally, and the supervision which will be instituted under the Act should ensure the elimination of stale and dirty eggs, and guarantee that the consumer gets eggs of the quality that he or she is paying for.

The Ministry of Agriculture of Northern Ireland was responsible for the introduction of the measure. In its consideration the department collected evidence over a period of many months and investigated thoroughly every branch of the egg industry. The numerous egg societies were interviewed, and the matter discussed at several conferences. Consideration was also given to it by the Commission appointed by the Government to enquire into the Natural and Industrial Resources of Northern Ireland. In their survey of the field of enquiry the Commission formed the opinion that the development of the egg industry was a subject to which they might profitably direct attention, and accordingly representatives of the various interests concerned were invited to furnish evidence. The recommendations made included the necessity of early action being taken by the State to check the practice of exporting stale and improperly packed eggs from Ulster to Great Britain. The evidence revealed that the Ulster egg trade was menaced by the practice of holding up eggs with the object of securing higher prices at particular periods of the year, and the indifferent and careless methods of packing eggs for export. The result of this policy, it was pointed out, was the loss of reputation and the rejection of Ulster eggs in favour of those of other countries, which had taken effective measures to establish a market in Great Britain.

Ulster's geographical proximity to England and Scotland should enable its merchants to place Ulster eggs on these markets in a fresher state than is practicable in the case of foreign or colonial eggs. There are approximately six and a half million hens in Ulster. Last year over three and a quarter million great hundreds of eggs were exported, which brought to Ulster a sum of about £3,300,000.

The principal provisions of the Act are as follows:—

The Ministry of Agriculture for Northern Ireland shall grant a licence to carry on business in Northern Ireland as a wholesale dealer in eggs to any person applying for such licence who complies or undertakes to comply with such conditions in relation to the preparation for sale and the consignment of eggs as may be prescribed from time to time by the Ministry, with respect to any class of such business in order to secure:—

(a) The proper testing, grading and packing of such eggs, and their freshness and fitness for the food of man; and
(b) Compliance with the requirements of this Act relating to any such eggs.

Any person who carries on business in Northern Ireland as a wholesale dealer in eggs without being licensed for the purpose under this section, and any person who deals by way of wholesale purchase of eggs with any wholesale dealer who is not so licensed, shall be guilty of an offence against this Act.

A licence granted under this section shall remain in force until suspended or revoked by the Ministry by reason of the non-compliance of the holder of the licence with the conditions prescribed, or for any other sufficient reason; and a fee of twenty shillings shall be paid to the Ministry in respect of the grant of each such licence. A certified copy of a licence may be issued upon payment of a fee of two shillings and sixpence.

All premises on which, by way of trade, eggs are preserved, cold-stored or pickled shall be registered by the owner of occupier thereof from time to time in such manner as the Ministry prescribes, and every such owner or occupier carrying on the preserving, cold-storage or pickling of eggs on premises not duly registered shall be guilty of an offence.

The owner or occupier of premises registered under this section shall keep such records and furnish to the Ministry such returns with respect to the delivery, despatch and ownership of eggs dealt with on the registered premises as the Ministry may prescribe. Any such records shall be open to inspection at all reasonable times by a duly authorised officer of the Ministry. If the owner or occupier of any such registered premises wilfully makes default in complying with these requirements, or if he makes any false or fraudulent statement in any record or return kept or furnished in pursuance of this sub-section, he shall be guilty of an offence against the Act.

No individual return or part of a return furnished in pursuance of this sub-section shall be published or disclosed except for the purposes of a prosecution.

Every person dealing in preserved, cold-stored, or pickled eggs, whether by wholesale or retail, whether as importer, consignor, consignee or commission agent, or otherwise, shall conform to the following regulations:—

(a) Every package, whether open or closed, which contains any such eggs shall be branded with the words "Preserved Eggs," "Cold-stored Eggs," or "Pickled Eggs," as the case requires;
(b) The brand shall be on the package itself, and not solely on a label, ticket or other thing attached thereto;

(c) The letters of which the brand is composed shall be capital block letters, not less than two inches square and distinctly legible;

(d) If any such eggs are exposed for sale by retail, there shall be attached to, or exhibited with, each lot thereof so exposed, in such manner as to be clearly visible to the purchaser, a label marked, in printed capital block letters not less than one and a half inches square, with the words, "Preserved Eggs," "Cold-stored Eggs," or "Pickled Eggs," as the case requires.

Every person dealing in, selling, exposing or offering for sale, or having in his possession for the purpose of sale, any preserved cold-stored or pickled eggs contrary to the provisions of this section shall be guilty of an offence against the Act.

The market authority of every market, in which tolls are for the time being authorised to be taken and actually are taken in respect of eggs, shall provide and maintain such covered sheds or other accommodation for the packing of eggs brought for sale at the market as the Ministry considers suitable.

If the market authority fail to comply with any requirement of the Ministry as to the provision of such accommodation, it shall not be lawful for them to demand or recover tolls in respect of eggs brought for sale at the market, for any period during which such failure continues.

Section twenty-eight in Part III. of the Public Health Acts Amendment Act, 1890, which extends and applies sections one hundred and thirty-two to one hundred and thirty-five, inclusive, of the Public Health (Ireland) Act, 1878 (relating to unsound meat) to all articles intended for the food of man, shall, in relation to eggs, be in force, as from the commencement of this Act, in every urban and rural district in Northern Ireland in like manner as if it had been adopted by the Council of each such district.

Any officer of the Ministry acting in the execution of this Act shall, without prejudice to any other provisions of this Act, have power:—

(a) To enter, at all reasonable times, any premises owned or occupied for the purpose of his trade by a licensed wholesale dealer in eggs, and to inspect any process of grading or packing eggs, or any eggs being in the possession of such dealer for the purpose of his trade;

(b) To take, for the purpose of export examination, samples of eggs found in process of being tested, graded or packed, or being in the possession of a licensed wholesale dealer in eggs for any purpose of his trade; and

(c) To enter, at all reasonable times, any premises registered for the preserving, cold-storage or pickling of eggs by way of trade.

Any person who is found guilty of an offence against this Act shall be liable, on conviction, for the first offence to a fine not exceeding twenty pounds, and for the second offence to a fine not exceeding fifty pounds, and for the third or any subsequent offence to a fine not exceeding one hundred pounds.

Where a person guilty of an offence is liable to a fine exceeding fifty pounds, and the offence, in the opinion of the court, was committed by the personal act, default or culpable negligence of the person accused, that person shall be liable (if the court is of opinion that a fine will not meet the circumstances of the case) to imprisonment for a period not exceeding three months.

Our readers will see how severe will be the competition we shall have to face. All countries which export eggs to our markets study them a great deal more than we do ourselves, the competition is becoming keener, and we are no more prepared to meet it than we were in pre-war days. All attempts at organisation have so far failed. At present prices are, to some extent, satisfactory. The producer only wants more eggs; in a few weeks' time he will be wanting markets. We ask our readers to consider this question:—

> If the Merchandise Marks Bill becomes law, and the marking of imported eggs compulsory, how will the average English egg compare with those which will come in from Ulster, and which will have to be marketed in accordance with the provisions of this Act? We are speaking of the average English egg, and not the first grade. We have to stand or fall by the average, not by the first grade.

Modern Poultry Feeding.

By TOM NEWMAN.

NUTRITION AND DISEASE.

"I have made numerous tests in the feeding of hens. For many years I have contended that many poultry diseases, such as roup and associated disorders, are not contagious troubles, but a condition caused by improper feeding. I really believe cod liver oil will put a new face on poultry work."—(Reliable Poultry Journal.)

The possibility of disease being due to some deficiency in the food supplied has only received serious consideration during recent years, and we can certainly claim that it was in the columns of "Eggs" that this possibility was first brought to the notice of poultry-keepers in this country. We have wandered from an excess of starchy matter in the food to an excess of animal protein, an excess of fat, an excess of fibre, the toxic properties of some foods, and now we are at the other extreme, discussing the deficiency of certain constituents as a predisposing cause of disease.

One cannot entirely accept the quotation given above. Professor Beach has demonstrated that there is such a thing as "nutritional" roup, but whether it is in any way connected with the roup which we find in flocks which are apparently well fed, we are not yet in a position to say. We may be confident that to believe proper feeding, without attention to ordinary sanitation, will prevent roup, will be one of the greatest mistakes we can make. The better the feeding, the greater undoubtedly will be the resistance of the stock to disease, and the importance of a supply of fresh green food is more than ever evident. The question is as to how to supply this during the winter months. Supplies of cabbage are not always abundant, neither are swedes, mangolds, etc. A good sample of alfalfa meal will go a long way, but there is every reason now to believe that a dried green food loses much of its valuable properties. A combination of alfalfa and swedes or mangolds would be perhaps the best, but there is much to be said for the sprouted oat, which has been largely used in America for years, and was first introduced into this country by Mr. Randolph Meech. I do not know of any poultry-keeper who takes the trouble to sprout oats for his stock now, but in view of these later discoveries we may think it worth while to resume operations, especially now the Little Putnam stove makes it such a much more easy task.

In a paper I read at the Harper-Adams' Conference three years ago, I drew attention to the value of sprouted oats as a source of Vitamin "B," and suggested that much time and trouble would be saved if the oats were just allowed to germinate and fed as grain. This would save the extra labour involved in chopping them up, as one has to do when they are allowed to grow till the green is several inches high, and there is no reason to suppose that the actual value is in the green itself, but rather that it is due to the germinated grain. We may one of these days appreciate the value of the sprouted oat and its significance as a preventive of disease, just as we are now beginning to awake to the value of cod liver oil, although I had a very hot time when I first wrote of it in these columns some four years ago.

A plentiful supply of fresh green food has now been found the best preventive and cure for "nutritional" roup and chicken pox. This is attributed to the Vitamin "A." Whether we can definitely say that is so remains to be seen. There are others who think the results are due to Vitamin "B," and others who think that the vitamins have nothing to do with it at all, but that everything can be traced to the mineral salts. We must wait and see, but that there is room for research work in poultry nutrition, nobody can deny.

I have a letter to-day from a reader in Warwickshire, and this is the burden of his song :—" I have 52 Rhode Island Red pullets, March hatched, they began to lay on the third of October, and I have some pretty good records among them ; but my trouble is that only 28 of them are laying, and the others, although in what you would call good bodily condition, have not made a start, and they don't look like doing so. The feed is ground oats and biscuit meal two parts each, thirds four parts, meat meal half a part by measure, grain equal parts oats, wheat and maize ; three times a week I add a half part pea meal. Can you tell me what is wrong?"

I only give this because it is typical of so many letters which I get. Obviously if the feed will produce eggs from 50 per cent. of the birds, it should do from the other 50 per cent.; that is the argument usually put forward, but feeding is not the only factor in egg production, if it were so our task would be a comparatively easy one. There is the question of rearing, as it affects production, and in very many cases this is the secret of the failure to produce the winter egg. I believe that we get more failures in this respect, because there is so much neglect of the young stock between the ages of three months and the productive stage. If there was more care of the young pullets in August, there would be more winter eggs. I am not speaking of only feeding—there is overcrowding, and frequently in the colony houses, with forty or fifty pullets in them, they are infested with insect life. It is so useless to write and ask for advice as to feeding when the conditions are such as would make the best feeding waste of time and money. One also notes how badly pullets need grading ; so many of all sizes are run together, and the weakest always go to the wall. A little grading would ensure their getting the proper nourishment they need, and would result in their contributing to the egg basket some weeks earlier than a great many of them do.

A curious thing happened this week. In the first place came a letter which I answered in the queries column as to the advisability of feeding bran in a separate hopper, in addition to the dry mash which contained 30 per cent. bran. The writer said he was doing so and his pullets were thriving on it, although they consumed exactly the same proportion of bran as mash. I gathered, however, that they were late-hatched pullets, and were not in lay. The second case makes the coincidence. A lady member, having been ill, left the hens in charge of the gardener. The latter misunderstood her instructions, and instead of feeding bran in the dry mash gave it in a separate hopper, the birds being allowed to consume as much as they liked. The consumption was greater than that of the mash, but the wonderful part of this is that the egg production not only steadily improved, but the improvement was maintained, and the birds are in the pink of condition. I would not like to recommend this method of feeding to my readers, but it upsets some of our calculations; for one would have thought that the consumption of such a bulky food as bran would have satiated the appetite and prevented the pullets consuming an adequate supply of nourishing food. Apparently they found it in the bran, which must have been superior to the average quality now procurable.

(Continued at Foot of Next Column.)

MODERN POULTRY FEEDING.—Continued

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

BROODINESS.

I notice that in the "Reliable Poultry Journal" that Dr. Jull, writing on Broodiness, says :—

> "Considerable progress has been made in the study of the inheritance of broodiness, the evidence to date going to show that its presence depends upon two genes. By suitable breeding methods it has been possible to develop quickly a strain of low broodiness from a strain with a very high degree of broodiness. This is a problem of considerable economic importance, since broodiness in a flock means decreased egg production and its elimination of profits."

The late Mr. Oscar Smart devoted a great deal of attention to this subject, and for many years advocated that we should not breed from very broody birds, and that hens which were practically non-broody should be mated to sons of dams who were also seldom broody. Continuous selection for high fecundity certainly does much to eliminate broodiness from a flock, and I know one or two flocks of Wyandottes where it is practically non-existent, but I must say that I am not altogether impressed with the size and vigour of these birds. I like my heavy breeds to be broody at least once a year, and do not care to break them too quickly then. If they are broody in April and May and allowed a brief rest, they will generally contribute a fair number of eggs in the late summer and autumn, when eggs are getting scarce. I am not writing of the persistent broody, which it is better to discard. A certain amount of broodiness is, I think, one of nature's safeguards. This autumn it appears to be rather more prevalent than usual, at least several members have written to say that some of their pullets are broody, and ask if this is usual.

B.W.D. AND IMMUNITY.

In another portion of this article Dr. Jull, writing on the hatchability of eggs, says :—

"The hatchability of eggs gives evidence of being transmitted from mother to daughter and from sire to daughter, although it has not been demonstrated that it has been transmitted from sire to son. The latter point may be demonstrated, however, within a few years, and the fact that this very important problem only now is in process of being solved is convincing of the difficulties involved in the many studies of inheritance. . . . At any rate, we are now pretty certain that strains of fowls with high hatchability can be developed with proper methods of selection."

There is nothing new in this fact, of course. It was taught in "Eggs" at least ten years ago, but it is interesting to see it confirmed. However, this has nothing to do with the title of this par. Continuing, Dr. Jull says :—

"There is another eminently practical problem affecting hatchability which has been receiving the attention of geneticists. The question of the number of embryos which die during the period of incubation and the number of chicks that die within three weeks after being hatched. This means that there are specific factors that cause the death of embryos. It is well-known that far too high a proportion of embryos die at hatching time and certain lethal characters have been isolated which cause the death of embryos possessing them. These lethal characters appear to be inherited in the same simple Mendelian manner as many other characters, and thus it is quite possible to eliminate through selection the genes giving rise to the characters.

"The important matter of the possible inheritance of resistance to various poultry diseases is receiving consideration. Resistance to bacillary diphtheria of poultry is believed to be due to the presence of a unique qualitative Mendelian factor the absence of which produces susceptibility to this infection. It is anticipated, therefore, that strains of poultry resistant to the infection may be developed. So with fowl cholera; two workers are already making a study of the possibility of developing, through selective breeding, strains of poultry immune to the ravages of fowl cholera. In time, these and other lines of work of a similar character should produce results of great value in the control and eradication of various poultry diseases."

I got into the hottest of hot water over a remark I made in these columns some months ago, when suggesting that the question of breeding for immunity to disease was deserving of our serious attention, so I am going to be careful not to repeat that remark now, as just at present I am not in the humour for controversy. I did not suggest that the characters appear to be inherited in a simple Mendelian manner, but some years ago drew attention to the fact that in every outbreak of roup there were birds which escaped. In every outbreak of B.W.D. there were some chicks which appeared immune, and that this applied to most other diseases, and I suggested that it would be an interesting study to breed from these birds which escaped the disease, and see whether it was possible to establish strains which would be immune. To me it seems that this and a more careful study of nutrition and environment generally, would be a better method of combating disease than, well, other methods. One would have to realise that if strains were developed on these lines it would be absolutely necessary that they should be kept "pure." What an interesting study it would be. By the bye, another absolute preventive and cure for B.W.D. arrived this morning. I have three now, but the only evidence sent in each case is, that since they have used it no B.W.D. has occurred in their broods, which is hardly convincing.

BRAN AND LEG WEAKNESS.

I have just received the following letter from Mr. Jeanes, which is, at least, of interest. The connection between bran as a litter and leg weakness is very difficult to trace, and we must be very careful not to jump to a hasty conclusion. The bran would certainly get very dry in a short space of time, and one cannot think that the humidity here would have any connection with leg weakness.

However, the point is a very interesting one, and I leave it to our readers to see what they can make of it :—

"Dear Sir,—Your article 'Modern Poultry Feeding,' in the issue of 26th November, in which you state 'Rats changed into cages and **litter** which has been exposed to the violet rays live and flourish,' has awakened me to the fact that litter may have an important effect on the leg weakness of chicks, of which we hear so much. My experience has been that thirty-five years ago, before the incubator and hover became so popular, chicks were hatched by hens and leg weakness was almost nil. My first real experience of leg weakness in chicks was those hatched by incubator, placed in a brooder and littered down with **straw chaff.** I then lost chicks by leg weakness, and also through them occasionally getting the litter in their throats. This caused me to change the litter, and for years I have used only **bran under the hover** for the little ones. This is brushed out and renewed every few days as soon as it gets very dry. I have had no case of leg weakness since, with one exception only. That was two years ago, when, through changing my residence, I had no bran at hand just at the moment, and I littered a batch down with straw chaff, under a hover which was placed on a board about four feet square and placed in a shed 16 feet by 18 ft. with earth floor of maiden soil, of which they had free use. This batch of chicks (ninety) had leg weakness and many died, although allowed free run in the open after ten days. By the time my next batch of chicks came along I had things in order, and they were littered down with bran under the hover, and no leg weakness occurred, nor has it with any hatch since. This may be of interest to you and other poultry-keepers. I may say that, though my experience has been long, it has not been great, but usually confined to about three hatches per year of about 90 per hatch. I rear

(Continued at Foot of Column on Next Page).

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Major C. G. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 6s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Major Saunders.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Major Saunders).

ALL questions should be addressed to the Editor. Major Saunders does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

L. Y. (East Devon) writes she has an acre and a half of garden and pasture. She purchased in February 25 1923 pullets and three cockerels (R.I. Reds), and from them hatched 90 pullets. Also 100 White Wyandotte eggs. Of these she has 58 pullets. Also some Light Sussex—13 pullets and seven Croad Langshans. She has now 170 pullets in all, which were hatched from 13th February to end of April. All are now laying except three Croads. The White Wyandottes commenced to lay on 10th July, and the R.I. Reds in August. In October her average yield was roughly 60 per day, and during November from 70 to 83. Sold eggs during October to the value of £21 6s. 2½d., and on November 24th, at the time of writing, she had exceeded that amount, and, if all was well, would expect to sell eggs to the value of £30. She asks if I think this a good egg yield; and, as many of the pullets would probably have gone into a partial moult owing to laying in July and August, I think she is doing very well, and that it should be a paying proposition. If she used the land wisely she might run up to 240 pullets, but she will have to conserve it because of the rearing stock. Her hatchability has been 75 per cent. of fertile eggs. There have been a large number of dead-in-shell. Rearing on my formula throughout she has only lost two or three out of each 70 chicks hatched. I cannot account for the dead-in-shell, unless more particulars are furnished as to the method of incubating, and at what stage the chicks died, and the state of the eggs. In answer to her further question as to whether she should endeavour to sell the majority of the pullets from February—I think not. It will be better to sell those not kept for breeding at the end of July, especially those which moult early. It will be useless to try and work up a day-old chick trade with only three 100-egg capacity incubators. If there is no vibration, the effect on the eggs in the stable, in spite of the engine, would not be injurious. I could not recommend a house, as per her sketch, which would combine incubators and brooders.

J. L. (Banbury) has a White Wyandotte cockerels which he describes as under:—He was one out of a hatch of four purchased from a well-known breeder, the other three being pullets, which have proved to be unsatisfactory.

J. L. desires to use this cockerel as a breeder. He describes him as "in-kneed," long necked, narrow in the back, low tail carriage, and lacking in type. One can only say that to use such a bird as a breeder would be a very grave mistake. He is not only lacking in type but in constitutional vigour. It would be advisable to scrap such a bird, in spite of his pedigree. No greater mistake can be made than to mate a bird which is obviously lacking in stamina and type, simply because he is bred from a record dam.

F. C. R. (Suffolk) sends a sample of bran which is of good average quality, and asks what is the advantage of mixing a mash with hot water as compared with cold? The advantage is that heat causes the starch granules in the carbonaceous foods to swell and rupture the cellulose envelope with which they are enclosed, thus making them more digestible. Mixing with cold water would only make the mash more palatable.

A. B. (Dorset) sends particulars of his incubation results last year. Out of a total of 6.141 eggs set, 499 were clear, 377 are described as bad germs, 466 died on the 14th day, 2,051 dead-in-shell and 2,748 chicks hatched. This comprises seven hatches, and the percentages do not vary greatly all through. It is hard to express a definite opinion, but the percentage of clear eggs is not unduly high, considering that the hatching began in January. Without being certain, I am inclined to think that the dead-in-shell were largely due to the stagnant atmosphere in the incubator during the last week of incubation; but, as I have no description of the eggs, cannot express a definite opinion. It is perfectly certain that more attention should be given to this question of ventilation during the last few days of incubation, for that is where so many go wrong. That, and the temperature during the first week, to my mind, is the keystone of successful hatching.

C. J. F. (Ipswich) encloses me cutting from the "Agricultural Gazette," with reference to some experimental work in incubation, and asks me to express an opinion. The details are not sufficient to enable me to do so, and although the results may appear

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S. P. B. A.—Continued.

on chick food and dry mash, and seldom lose more than three per batch. I have noticed that as the bran under the hover gets very dry, the chicks begin to droop and go off colour until it is changed, when there is a quick revival. Do the chicks obtain moisture or some vitamin from contact with the bran, which they fail to get from straw chaff?"

C. H. JEANES.

remarkable, there has been no comparative test and no control, and on too small a scale to allow one to say anything definite. He has 80 R.I. Red pullets which were bred from six 1923 pullets, sired by a 1922 male. He says he had quite two-thirds majority of pullets, and asks if this result is to be expected from such a strong mating. Also, would it do for him to mate the 80 pullets to their own brothers? If not, he proposes to use the dam's own brothers—would that do better? The actual number of hens mated to the male had probably nothing to do with the high percentage of pullets. The reverse results have been obtained from similar matings. He would be very unwise to mate the pullets to their own brothers. Surely he should be aware that such in-breeding as this could only have a detrimental effect upon the stock, and the other mating he proposes—i.e., mating them to the dams' own brothers—is also not to be recommended. He must learn that a proper mating is of the utmost importance if he wishes to conserve the vigour of his stock.

E. S. M. (Ongar). It is not correct to say that in-breeding results in physical deterioration and out-crossing leads to enhanced vitality. The in-breeding of inferior individuals necessarily results in deterioration. There is no difficulty in maintaining constitutional vigour in the pure breeds if one is an experienced breeder. Out-crosses introduce many complications which can always be avoided by careful selection. I cannot see that a cross between the Black Leghorn and the Cuckoo Leghorn can be an economical one, although it enables you to dispose of the cockerels at a day old. Before recommending such a cross I should think it wise to test it on a large scale.

F. W. (Wakefield) wishes to know the price and where obtainable of the book, by Dr. O'Charnock Bradley, "The Structure of the Fowl," which Capt. Leeney mentioned in his article on "Sour Crop." The price of the book is 10s. 6d., and it is published by Messrs. A. and A. Black.

J. M. (Anmer) says that he has 30 R.I. Red hens running in a spinney. He did not trap this lot, but kept a very careful record of the number of eggs laid in the twelve months. They laid, as pullets, 6,488 eggs—i.e., from 1st November, 1923, to 31st October, 1924. He now asks if he may with perfect safety mate them up for the coming breeding season to their own sons, hatched the first week in March last. It is such a difficult question because I have never seen these birds, and in a close mating like this they should not only be exceptional as regards their record, but also as to constitutional vigour, type, etc. Then, again, there is no trap-nest record, and their own sons may have been bred from hens with comparatively low records. The average is 216.1 per bird, but there must have been hens in that pen which have laid considerably less than 200 eggs, so there is the risk to run. I never recommend this mating, except in the case of very exceptional birds, and because of this I would not recommend it here.

A. E. (Scarboro') propounds this problem:—He has lately taken over the management of a farm, and the stock were pure bred, and have been bred, to quote his own words, for the line-bred system for the last three years, which he understands is the best way of breeding for egg production, and which he intends to carry on. What he would like to know is a proper knowledge of this system of line-breeding and in-breeding, and how long one can line-breed without having to change to fresh blood in the same strain?

It has been pertinently said that you line-breed when you succeed, and in-breed when you fail. As I have previously explained, there are three forms of in-breeding—the sire to his daughters, the dam to her sons, and brother and sister. Now, you line-breed when you breed within your strain but do not go to such close relationship as this. The question as to how long one can go on line-breeding is unanswerable. That is, that you cannot put a period of time to a day. It depends upon your stock. If it exhibits any weakness you will then know that it is time to introduce new blood. This weakness may be exhibited by smaller birds, decreased fertility, poorer hatchability, and difficulty in rearing. Generally the first signs are shown by poorer fertility. I do not agree with my correspondent that line-breeding is the best way for egg production. I do not know what experience he has had, but I would advise him to abandon it unless he has had many years' experience, which I gather from his letter he has not. He now suggests mating his three-year-old hens back to their sons. This is not a mating I would advise, as I have said in answer to a previous correspondent; but the man on the spot can always judge these things better than the man in the office. I am wholly against such close matings, except in the most exceptional circumstances. His best policy it seems to me would be to select a few of his best hens, mate them to a cockerel of another strain, and use the resultant cockerels for his breeding stock in 1926.

A. G. D. (Cranmore) asks our opinion in respect to two incubators which he names, and also two hovers. In reply to his question a better investment would be "B" incubator and "D" hover. In answer to a further question as to whether a variation of ten degrees, as between night and day in the incubator room, would materially affect the working of either incubators. The answer is in the negative, assuming, of course, that the incubator room temperature is round about normal (50 degrees).

H. W. (Carmarthen) asks for a dry mash feed for laying hens, and for information on their treatment. The latter is too general a question to answer. The best dry mash feed we can give for laying hens is:—One 1lb. bran, four middlings, two maize meal, half soya bean meal, and half meat and bone meal or fish meal.

G. A. (Malvern), who has hitherto run his incubators in a spare bedroom, now asks, as this is not available, whether a well-built wooden office would be suitable. I cannot answer this question. So much would depend on whether the temperature in the office would vary to any great degree. If the temperature would not fall below 45 degrees, or rise above 70, the office would be suitable, provided the ventilation is satisfactory.

The Egg Machine.

By LIEUT.-COLONEL MACRORY, D.S.O.

THE BUSINESS END.—(Continued).

We will assume that you decide to pay yourself as book-keeper £100 in order to carry on with till you begin making your fortune out of eggs. That is, you advance the business £100 out of an outside account of your own, which we decide to call your "Private" account.

Your Cash book will now start as follows:—

MR. A's POULTRY FARM.

CASH BOOK.

Dr. Cr.

Date.	Folio.	£ s. d.	Date.	Folio.	£ s. d.
1/1/25.			4/1/25.		
To Private A/c		100 0 0	By Cash (S. Dull)	2	6 0 0
			By Balance	v.	94 0 0
		100 0 0			100 0 0
4/1/25.					
To Balance	v.	94 0 0			

NOTE.—The Private A/c Entry is not yet double entried into the Ledger, as indicated by the absence of a folio number in the folio column. The v. in the folio columns against the balance indicates that this entry occurs on both debit and credit side; v. is the abbreviation of versus.

You will see that so far you are debtor to your "Personal Account" for an advance of £100, and you are credited by a payment to Sam Dull of £6, which leaves you still a debtor to the Cash Book to the amount of £94, the balance between £100 and £6. To get the idea of "Balance" firmly into your head, imagine a pair of scales, with 100 beautiful golden sovereigns in one pan (this is a difficult feat of imagination, I admit!) From your bulging pocket you produce six equally desirable sovereigns, and place them on the other pan. This will not make the scales balance each other, and you have to search your pockets for more "jimmy o' goblins" which you go on adding to the pan with six already in residence. When you have added 94 more, the scales swing evenly. That is, 94 sovereigns were the amount required to secure the balance between 100 and 6. The balance between two sums is always the amount required to make the lesser equal to the greater, and is always obtained by subtracting the lesser from the greater.

Please observe that, after balancing your accounts, as shown in the specimen Cash Book, you always rule a DOUBLE line under the balanced totals, and carry the "Balance" down to the opposite side beneath the double line.

Now for the ledger—the Master-Book of the whole position. This book collects the scattered threads of the Journal and Cash Book into one comprehensive homogenous whole, from which the true state of your trading can be readily obtained.

In all businesses there are two distinct varieties of accounts.

(1) Those dealing with persons who are trading with you (known as "Personal Accounts").

(2) Those dealing with the sort of goods in which you are trading (known as "Impersonal" or "Nominal accounts").

Before starting your Ledger consider carefully what "Nominal accounts" you will require. Have a look at your Journal entries. You have bought an incubator—so you want an account to hold it—call it a "Houses and Fittings Account." Start that account, say, on page 1 of your Ledger. You have, you also see, bought that incubator from a Mr. James Brown, who will in due course demand payment for it.

The "Houses and Fittings" Account is the "Impersonal" or "Nominal" Account, while Mr. Brown's is the "Personal" Account. One of these accounts must be credited with £13 10s. 0d., the other debited with the same amount. If you DEBIT Mr. Brown in his "personal" account with this sum, as well as lifting his incubator, Mr. Brown will have a word to say on the subject, and may make some distinctly "Personal" remarks.

No—you have got the incubator—you must really *credit* the poor man with its price—£13 10s. 0d. It is therefore necessary to debit the "Impersonal" or "Nominal" Account with £13 10s. 0d., so this sum is put to the debit of "Houses and Fittings" Account. Assume you start the latter account on folio 1 of your Ledger, and Mr. Brown's account on folio 100. As you debit the sum on folio 1, you note this number (in red pencil, for preference) across the Journal entry, and as you credit it on folio 100, you similarly note 100 across the Journal entry. These two numbers written on your Journal entry show you at a glance that that particular entry is now "double entried" in your Ledger.

If you look down the other specimen Journal entries you will see that it will be necessary to open accounts in your Ledger for them, headed:—(a) Hatching Eggs Bought. (b) Poultry Bought. (c) Feeding Bought. (d) Bags Sold (or, preferably, you might enter this direct to the credit of your Feeding Account, and avoid starting a Bag Account altogether). (e) Houses and Fittings Account (which has been already started, to enter your Incubator purchase in).

So you may now double-entry all these Journal entries into your Ledger, in your leisure time.

Eventually comes the day of reckoning, even with you, and you have to pay these accounts, payments, being cash transactions (cheques, postal orders, stamps, and other oddments, are all reckoned as Cash), must go direct into the Cash Book. Remember that all payments you make are credited to you in this book, and all payments made to you are debited against you. These payments finally square the "Personal" accounts in your Ledger. The "Nominal" accounts, however, remain unsquared. Your Feeding bill becomes bigger and bigger in the Ledger, as do most of your other accounts. You begin to wonder where the profit is in poultry keeping. Eventually, however, comes the day when you begin to sell poultry produce from your farm. With joy you now start a "Poultry Sold" account and an "Eggs Sold" account, and you begin to find *credit* entries going into these accounts in the ledger, and corresponding debit entries going against the buyers. The latter accounts are balanced when the buyers pay their bills, but the credit entries in the "Impersonal" accounts remain unbalanced.

After you have made a fair valuation on your capital expenditure, such as Poultry Houses and Fittings, the excess of your credit nominal accounts enables you to find your profit. If there is no excess, and you have spent all your capital, enquire for the nearest workhouse. Such in brief, are the principles of Double-Entry Book-Keeping. This system, modified to suit you particular needs, is the only possible system to work on—its principles are undeniably true and accurate.

It will further be observed that as every Credit Entry in one account MUST involve a corresponding Debit Entry in some other account and vice versa, it is obvious that the sum of all credit entries must equal the sum of all debit entries. If you enter up and add all the Credit Entries at any time as against all the Debit Entries, the two totals must be identical, provided that your arithmetic is correct throughout, and that all your double-entry postings have been correctly made. This check of accuracy can be made at any time, and is known as "taking out a Trial Balance." This is invariably the first thing to do before attempting to make out your Trading Account and Balance Sheet from your books.

I have done my best to make this system clear to the reader, but remember that in book-keeping, perhaps more than anything else, an ounce of practice is worth a ton of theory. So start right away, and begin keeping your poultry accounts on the Double-Entry system, being well asured that it is the only possible system in the book-keeping world to-day.

I should not like to conclude "The Egg Machine" without a public acknowledgment of how extremely helpful "Eggs" has invariably proved to me. I collect eggs every day in the week, but the "Eggs" which I collect every Friday morning from the local postman is certainly the one in which I take most interest.

Nor should I like to finish this without an apology for the somewhat rambling nature of these remarks. We are, however, very far from finality in poultry-keeping, and even since I started writing this account I have modified my views on various "hen points." For instance, I have lately kept about 100 hens intensively for over two months without giving them a vestige of green food of any description, and these hens have laid better and looked better than my other two thousand birds which have been religiously supplied with green food in one form or another. The question arises: "Is green food necessary at all, and if it is, is it necessary except during the months when it, in common with all other young living things, is actually growing?"

My own opinion, founded on observation and a certain amount of practice is that green food is totally unnecessary except during the spring or "growing" months.

But if green food is unnecessary, I am convinced that oxygen, in the shape of really good ventilation, is absolutely essential for good results. Ventilation, mind you, from the egg upwards to the perfect pullet. Much discussion is still wanted on this subject of ventilation. I will, however, conclude with three maxims of my own:

> Ventilate your eggs in their incubators (as well as saturating them).
>
> Ventilate your chicks in their brooders.
>
> Ventilate your difficulties in "Eggs."

And so (as Mr. Pepys says) to bed.

Sunnybank Poultry Farm,
Saltburn-by-Sea, Yorks.
11th November, 1924.

"Dear Sir,—I appreciate 'Eggs' tremendously—there is something good on every page, and it is really the **only** Poultry Paper worth reading. I have found the other papers a sheer waste of time."

Yours faithfully,
(Signed) (Miss) E. ARMSTRONG.

Withysham,
Merstham, Surrey.
10th November, 1924.

"Dear Mr. Newman,—My Wyandotte record for the past three years—flock of 30 to 40—averaged 219, 189, 202, and this I have done by reading your valuable paper and advice.

Yours faithfully,
(Signed) E. PASSMORE.

Correspondence.

BACKYARD RESULTS!

To the Editor of "Eggs."

Dear Sir,—You may be interested to know the result of the twelve months' poultry-keeping in my backyard, or rather back-garden. Last autumn I purchased half-dozen White Leghorns from a member of the S.P.B.A., specifying that I wanted them for EGGS, and for no other purpose. He delivered the goods himself, and his birds, I am very pleased to say, have gone and done likewise!

The White Leghorns were rather late in commencing to lay—at end of November, 1923—and laid rather irregularly, and not always with the best of health, until about January of this year, I read in "Eggs" your remarks on the value of dried yeast as a supplier of the necessary vitamins. Now, my experience of "backyard" poultry-keeping is that for success it is necessary that the whole run should be covered from rain, and, as far as possible, kept dry under foot.

When I added dried yeast, as advised by you for your standard dry mash formula (½lb. Nitrophos and ½ lb. dried yeast) my troubles were over. The birds have laid continuously and well, and their health has been as well as it is possible to keep them under backyard conditions. The following results were on your dry mash, no spice or other condiments being used. Maize, I might mention, has been liberally given throughout as part or the whole of the grain ration, according to the weather.

The following is the result (one bird broody for some weeks) :—

1923.—December 132 eggs. 1924.—January 163, February 127, March 149, April 186, May 189, June 135, July 133, August 125, September 134, October 74, November 60.

Grand total for twelve months, 1,607 eggs.

The birds appear to have had an easy moult, and are now practically finished. I am still getting two and three eggs a day, and have never been without eggs since they commenced laying last November. They have had plenty of cabbage leaves and swedes in winter months.

I believe you will agree that a total like this for backyard fowls on DRY MASH (T.N. formula) cannot be called a failure. It is the best result I have experienced so far under the very simple conditions of management, and I take off my hat both to you and to the breeder. "Cheerio!"

Yours sincerely,
CHAS. E. RICHARDS.

60, High Street, Hythe, Kent.
1st December, 1924.

VITAMINS AND THE ULTRA-VIOLET RAYS.

To the Editor of "Eggs."

Dear Mr. Newman,—I was very interested in Mr. Roscoe's letter in "Eggs" of the 26th ult., regarding "Vitamins and the Ultra-Violet Rays," and I should be very much obliged to him if he could tell me what kind of electric lamp is required, or would be suitable for the emanation of these rays, where they can be purchased, and approximate cost of same. I presume that by "high frequency currents" he means the ordinary main current?

I asked an electric supply stores yesterday about such lamps and they had no knowledge of them, and my knowledge of the ultra-violet rays is confined to scalp massage with the same at the hairdressers. I should like, if an opportunity arises, to test the value of these rays.

I remember Mr. Meech trying electricity as an aid to growth of chicks, but that was quite a different thing and produced no palpable result.

Perhaps Mr. Roscoe would not mind writing to me direct.

Yours truly,
H. A. SULLIVAN.

Monks Orchard, Blatchington, Seaford.

MR. SLADE'S LETTER—COST OF FEEDING.

To the Editor of "Eggs."

Dear Sir,—I entirely agree with your conclusions. If a commercial poultry farmer cannot hatch and rear his own stock, he had better retire. It is about the last thing I should wish someone else to do for me. Breeding, hatching and rearing, as a whole, is the foundation upon which the business rests for good or ill.

In your Editorial you write of a crisis facing the egg farmer. I submit that if there is, it is his own fault. Writing as a commercial egg farmer, pure and simple, one who depends mainly on eggs, but altogether on table eggs and table poultry for his returns, I do not think there is anything to be alarmed about. provided each individual in the business learns his job as people in other businesses have to do before they can hope to think of success. It is because it seems to me so many poultry farmers have not yet learned the first principle of business that I am penning these lines. To buy well is the first principle in business to-day, whether it is poultry farming, flour milling, provender milling, or anything else. Poultry farmers, as a class, are bad payers, and, therefore, inevitably bad buyers. Also, owing to the ignorance that prevails amongst them, they are led away to buy all sorts of products, the composition of which they know nothing, and are beguiled by high sounding names. In reading the questions addressed to you, Sir, I am often astounded at the prices quoted for ordinary feeding stuffs. In some cases, perhaps, there is an undue profiteering, but generally the causes are probably the results of long credit taken, with its consequent risk, very small bulks, and a round-about system of distribution, which includes the cost of advertising, and more than one rail charge.

If the ordinary feeding stuffs of commerce are to be bought properly the cost of transports must be limited to what is absolutely necessary. Poultry feeding is a simple proposition, and the foods necessary can be counted on the fingers. They are all staple products, with no mystery about them. T. W. Toovey, Ltd., millers, are one entity, and T. W. Toovey, poultry farmer, is another, although I have the control of both businesses. I buy most of my feeding stuffs from my company for cash, I have no favour, and the firm would supply locally at the same prices on the same terms. I am not saying this for the purposes of advertisement, but to try and explain what follows. A wholesale firm has to buy most carefully, it has to take long views, because we must buy on ex-ship terms, and ships are not arriving even in the Port of London every day. We try to take an intelligent interest in coming events, and anticipate advances if we can, whether we succeed or not; very often it is not. Our selling prices are revised weekly or bi-weekly in accordance with the values of the day. Our costs are carefully arrived at, and we sell at a profit of some 2½ per cent. after paying expenses. We have travellers out every day, and we obviously cannot have two prices to suit the credit and risk of each customer. We do not sell for delivery outside the radius we can cover with our own lorries. We have often been asked to quote for goods outside this 20 to 25 mile radius; our answer is invariably to decline, because we could not do this business without raising our prices, and we know quite well that a buyer should, and could, buy cheaper than we can supply in his own locality, if he paid as he should and went about it the right way.

Farmers and poultry farmers are notoriously irregular in meeting their engagements, whereas in our case we must, if we are to remain in business, meet our engagements to the day. For English grain we pay cash, for foreign we get a month's credit from the day the ship reports, which, in practice, means, as far as the possession of goods is concerned, about fourteen days. We also have to hold considerable stocks of various grains and products. It is obvious, with a heavy business like this, and a very small profit, we can[illegible] give long credit unless prices are raised accordingly to cover the necessary extra profit, and what is more important still, the risk of bad debts, which are a necessary and invariable corollary of long credits. Neither can we, at 2½ per cent. profit, sell in penny numbers. The bulks must be appreciable.

What we generally find with poultry farmers is that they take two, three or four months' credit, and require two or three persuasive letters even then to get the money paid. Then, to add insult to injury, they are aggrieved because we are so unreasonable as to ask for payment. As we have only one price for everyone, and cannot lower and raise prices to meet particular cases, and as our terms of credit are for a month only, we have not very many farmers and poultry farmers on our books, but leave them to buy of the retail firms we supply, who can, by a more elastic system of trading, charge them the prices their terms of doing business justify them in paying. All the same, when farmers of any kind observe business principles in doing their business, we are only too grateful for their consideration, and do our best to supply them honestly.

The sum and substance of all this is that if poultry farming is to be looked upon as a serious business, those who follow it must realise that the purchasing of the raw material, which constitutes some 70 per cent. of their total expenses, is a factor in their business which they have got to learn, or go under.

At the moment prices are easing a little. At the revision of prices that takes place here every Saturday morning, last week I was able to grade down on most things about 5s. per ton, which I was very glad to do, as manufacturers' high prices do not suit us.

Yours faithfully,
T. W. TOOVEY.

Eastwood Manor, East Harptree, near Bristol.

Dear Sir,—I enclose cheque for 12s. 8d. for another year of "Eggs." If you made it £5 a year it would be cheap.

Congratulations on the only paper for ordinary mortals who are generally struggling to understand high-flown stuff from Expert Cranks.

Yours gratefully,
(Signed) C. J. LAMBERT.

"Mametz," Brundall, Norfolk.

Dear Sir,—Although only a member of about six months' standing, I must congratulate you on the soundness of the principles and the excellent spirit of the movement. I have kept poultry all my life, but must say that, thanks to the books sent me when I joined, and by following your excellent publication, "Eggs," I have learnt more since joining than the whole previous period, and my results this year following your methods of feeding, housing, etc., are most gratifying.

Yours faithfully,
(Signed) KEITH PARKER.

"Sundridge House," Marlborough Street,
Faringdon, Berks.

Dear Sir,—I feel I must write a word of appreciation regarding the valuable information received through "Eggs."

I have been using your feeding formulas from the Register, results being very satisfactory. Wishing the S.P.B.A. every success.

Believe me, yours respectfully,
(Signed) E. L. FOARD.

Whale Meal.

By **F. W. WAIT.**

In a recent issue of "Eggs" the possibility of Whale Meal being offered as a food for poultry was mentioned. It was also suggested that before doing so, a test should be made.

As an endeavour to place such a material on the market is under consideration, perhaps a warning note issued now may prevent much mental worry and financial trouble later on.

The damage that has been caused in the past by using low grade fish meal has been owing to excess of either salt or oil. Herring oil has been the main cause of tainted eggs. It is now common knowledge that herrings should not be used in the preparation of food for any class of live stock.

The bulk of the Norwegian Whale Oil Supply is purchased by England, the only competitors being America.

The oil in its crude state has a vile, abominable smell. The supply generally is used for the manufacture of soap. In its crude condition it can only be used for the manufacture of low grade soft soap, but the smell of this is too objectionable to be used for household purposes.

By a special process of hydrogenization the crude oil can be de-colourized and de-odourized, and used for the manufacture of household soaps.

The oil is extracted from the blubber or fat of the whale. It is stated that the Whale Meal contains approximately 15 per cent. oil. This alone would certainly condemn it as a poultry food.

But, supposing the oil was extracted from the meat, either by means of a chemical solvent or other well-known means, I should certainly be inclined to think it would be impossible to get the taint of this vile stinking oil out of the flesh.

In placing any new food on the market the whole onus of proving that it is absolutely fit for the purpose for which it is sold should fall upon the manufacturer, and not on either the retailer or consumer.

It is his duty to give, not only full analytical findings and details of its physical properties, but also the result of practical tests on the class of live stock for which it is sold as food.

Actions in the past in this direction have been far too haphazard, and there should be some responsible authority, such as the Ministry of Agriculture, who should have and utilise more power in this direction.

If, for instance, they could standardize Millbay offals, such as middlings and bran, what a godsend it would prove to the poultry-keeper. Why should ground bran with its inferior nutritive value be sold as middlings or fourths?

There is no scarcity of reliable fish meal or meat meal. The writer, therefore, suggests that poultry-keepers, also merchants, who sell mixed foods, should give Whale Meal a very wide berth, until such time as there is undeniable proof that it is suitable as a food for poultry and without the slightest possibility of it tainting either eggs or flesh.

POST-MORTEMS.

E. H. The post-mortem examination of the hen showed the cause to be blood poisoning from absorption from dead and decomposed yolks on the stalk. This is by no means uncommon in over-productive birds, the yolks maturing faster than they can be taken up by the oviduct. No treatment is of avail, but the avoidance of forcing will lessen the number of casualties.

W. W. P. The post-mortem examination on the hen and pullet reveals identical conditions, viz., a very intense inflammation of the kidneys and clotting of the blood in the great vessels and heart. The livers were darker than normal, the remainder of the organs free from any signs of disease. While it is true that a severe chilling could produce these conditions, I am more inclined to think that the cause is bacterial, viz., to the toxins produced by the B. Botulinus, which is often present in decaying or spoiled foodstuffs. It would be as well to carefully examine the bird's range for any possible decaying animal matter, and the foods for signs of spoiling. To promote elimination, fifteen grains of glauber salts per head, given daily in the mash for a week, might prove of service, and any visible affected birds should be given three grains of powdered Nux Vomica twice a day.

A. L. The cause in the case of the pullet was peritonitis, due to rupture of the oviduct. This might have occurred from straining to lay a broken egg that was present in the posterior of the duct. The pullet was rather on the fat side, and it might be as well to reduce the others somewhat, by allowing more exercise and withholding the maize for a time.

A. A. B. I have made very thorough post-mortems on the four chicks, and found that they were all suffering from infectious pneumonia, in varying degrees, and also that the same congested state of the kidneys, as in the former cases, was present. The food samples appeared to be quite sound, but I am of the opinion that neither fish or meat meal should be given to birds of this age, as they would be very susceptible to any bacterial contamination that might be present, and in any case are too young to properly and safely assimilate and make use of so much protein food. As regards the yolk sac, any abnormal condition will prevent its absorption, and the failure to do so is not indicative of any specific disease. I should advise leaving both fish and meat meal out of the ration, as, although neither can produce pneumonia, they have evidently upset the body chemistry, and in that way lower the birds' resistance to disease. In addition to the tonic medicine already being given, the premises and equipment should be carefully cleaned up and disinfected, and any old bits of sacking, rotting wood or vegetation collected and burned, as these are all harbourers of the aspergillus fungus.

C. B. The post-mortem examination showed the cause to be internal haemorrhage, due to the breaking down of a cancerous growth of the ovarium, which was extensively diseased. It is not uncommon for birds to show no signs of mortal illness until actually in the throes of death. Reports on cases are no longer made through the columns of "Eggs," but only by letter, or in very urgent cases by telegram.

F. G. H. The post-mortem examination of the White Leghorn pullet revealed a ruptured cloaca, with protrusion of the bowels through the rent; there was also a recent rupture of the oviduct about half way up, and there was a large clot of blood in the abdominal cavity. Excessive straining in laying a large or malformed egg might have produced these conditions, and is one of the most prolific causes of prolapse of the oviduct. In this case reduction of the prolapse would have been useless, owing to the rupture. Your method of treating prolapse, by reduction and suturing is quite sound, but if the parts are well swabbed with a strong solution of alum the results are more certain. If prolapsus is due to the causes mentioned above, there is no reason why further trouble should be expected, but if due to relaxation of the ligaments of the oviduct or disease of that organ, the bird had better be dressed for the table.

F. R. This case should impress you with the importance of early isolation. Diphtheritic roup was the disease, and it extended all the way down the windpipe, with its lumen gradually occluded by the croupous deposits. Suspects should be instantly removed to a distance, and their heads, with mouth fixed open, dipped in two per cent. of permanganate of potash dissolved in water, and there held for 20 to 30 seconds so that the medicament may come in contact with the membranes. Drinking water should be restricted to that, having a dram of sulphate of copper to the gallon dissolved in it. Thoroughly disinfection and burning of litter swept up is also advised. Will you please note that post-mortem examinations are for the future to be conducted by Major C. G. Saunders, D.S.O., Tarring Road, West Worthing, and not by me.

A. A. B. The post-mortem examination of the three chicks revealed the following: One showed the typical tubercles of infectious pneumonia, caused by the fungus Aspergillus fumigatus, and also congestion of the kidneys. The other two had only the kidney lesions. In none of these three was there any sign of stoppage, and very little grit of any size was found in the gizzards. From the symptoms you describe and the congested kidneys, I am of the opinion that the trouble was due to food poisoning, in two of the cases at least, and possibly was partly responsible also in the pneumonia case. I should advise giving the quinine and iron to the whole of these birds in contact, and examining the foodstuffs for any signs of spoiling.

J. L. G. The examination of the tumours on the White Leghorn pullet showed them to be Haematoma or blood tumours. They occur from the rupture of small blood vessels under the skin, the blood clotting forming a semi-solid body. The giving way of the vessels may be due to some weakness of their walls or to direct injury, such as a blow. Treatment consists in laying them well open with a sharp knife, removing the clotted blood, and cauterising the resulting wound. The caustic employed may be either a silver nitrate pencil, a crystal of bluestone, or extra strong tincture of iodine. The wound should be dressed daily with some antiseptic solution until healing takes place.

C. S. R. There were no signs of poison in the internal organs of the K.-C. Duck, but the fiery appearance of the muscles, punctiform haemorrhages in heart, liver, spleen, and kidneys, indicates that the cause of the trouble is Haemorrhagic septicaemia. The ovarium was undeveloped and in an apoplectic condition, some few of the ova being actually necrotic. The bacterium responsible for this disease is widely distributed, but appears only to become active under certain conditions. I am of the opinion that the mucking out of the yard was to a large extent responsible for the appearance of the disease. Unfortunately there is little that can be done in the way of treatment, as death occurs so rapidly after the onset of symptoms, in fact sometimes quite suddenly without previous warning. As a preventive hyposulphite of soda, in ten-grain doses, given daily, either in the mash or water to drink, has proved of some service.

Bellrock, Prestwick,
Ayrshire.
28th July, 1924.

'Dear Sir,—I should like to add, in closing, my appreciation of 'Eggs.' My hatching results with a Gloucester Incubator have been brought from 65 per cent. to over 90 per cent. of eggs put in during the last few seasons, as a direct result of information contained in your valuable paper."

Thanking you, I remain,
Yours faithfully,
(Signed) JOHN L. BURGOYNE.

Pioneer Poultry Farm,
Kalaw, Fedtd. Shan. States, Burma.
11th June, 1924.

"Dear Sir,—Your excellent paper is worth all the other poultry papers put together. I glance through the others and read yours from beginning to end for fear I shall miss something useful."

Yours faithfully,
(Signed) DOUGLAS J. ANSELL.

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Callaghan, Miss H. M., Croft House, Methven, Perth.
Brown, R. J. Castleman-, Arnold Hill P.F., Leeds, Maidstone, Kent.
Harvey, C. D. W., Winford Manor, Winford, near Bristol.
Dawson. H. Foster-, "Trewarne," Penryn, Cornwall.
Smith, C. H., Sunnybank Poultry Farm, Newton, near Prestbury, Cheshire.
Tomkinson, Miss M., The Tyning, Harrietsham, Kent.
Edmonds, Edward, 11, St. Mary's Road, Oxford.
Pointer, S., Uffington Station, near Stamford, Lincs.
Darling, Capt. W. Doug., Fawkham, Kent.
Seadon, E. R., "The Apiary," Bromley, Kent.
Holme, J. W., Steale, Grange-over-Sands, Lancs.
Holding, A. E., The Arran Bank P.F., Arran Bank, Bredhurst-by-Chatham, Kent.
Carrington, G. H., High Street, Bottesford, Notts.
Taylor, E., Higher Metcombe, Tipton St. Johns, E. Devon.
Roberts, Mrs. G. W. H., Orchards Poultry Farm, Greet, Winchcombe, Glos.
O'Brien, E. O., Tir Beg, Charing, Kent.
Buxton, Miss D., Blackwool Farm, Petworth, Sussex.
Dace, S. A. (Manager), Greensward Poultry Farm, Hockley, Essex.
Allewell, Fred, New Leake, Boston, Lincs.
Russell, Mrs. E. H., Ballyedward, Magheramorne, Ireland.
Massey, J. W., 42, Sinderland Road, Broadheath, Cheshire.
Nicholls, L. E. (Sec.), Hudds. Sanitary Steam Laundry Co., Sheepridge, Hudds.
Carlton, Herbert, 8, High Street, Horncastle, Lincs.
Darbyshire, O., 364, Hindley Road, Westhoughton, Lancs.
Chambers, E. Lloyd, "Fircroft," Cross-in-Hand, Sussex.
Yeates, Mrs. R., Weston Farm, Chard.
Jones. Miss D., Pineholt, Hucclecote, Gloucester.
Weeks, B. F., Shaw Fruit Farm, Shaw, Newbury, Berks.
Long, S. H., 22, Queen's Road, Lansdown, Cheltenham.
Whitehead, Sam, Lee Cottage, Shibden, Halifax, Yorks.
Pennington, W., 6, Bewsey Street ,Thatto-Heath, near St. Helens, Lancs.
Bruce, A. D., The Pines, Fleet, Hants.
Sawyer, A., Holmroyd P. Farm, Crosshills, Keighley.
Birtwhistle, A., Dene Cottage, East Morton, Bingley.
Clooett, Wm., Edge Farm, Braithwaite, Keighley.
Brindley, Percy, The Leese, Frognall, Stoke-on-Trent.
Webster, Jas. G., "Birtle Dene," Rossall Road, Ansdell, Lytham.
Wright, —., Wenallt, Crosswood, Cardiganshire.
Plaistowe, W. M., The Lee, Hilton Road, Natal, S. Africa.

LIVERPOOL AND DISTRICT BRANCH.

The December Monthly Lecture and Egg Show will be held in the "Common Hall," 3, Hackins Hey, Liverpool, on Thursday, December 18th, 1924, at 7.30 p.m. Lecturer: Mr. Wm. Hamnett, Myrtle Poultry Farm, Blackpool; Subject: "The £ S D of Poultry Breeding."

Egg Show.—3 Classes: White, Brown, Cream or Tinted. Substantial prize to each class according to entries.

Judge: Mr. Hamnett.

As the hens are through their moult by now, and should be putting "pep" into their efforts to fill the egg basket, I expect we shall have a bumper egg show. The more entries the bigger the prize, so will every member try to send at least one entry.

R. J. THOMAS, Hon. Sec.

KEIGHLEY AND DISTRICT BRANCH.

The monthly meeting, held on December 10th, was presided over by the President, Mr. Frank Snowden, and was fairly well attended. The minutes of previous meeting were read, passed and signed. Accounts were produced to be passed for signing, but several items were left over for the Committee to deal with.

Mr. Snowden extended a hearty invitation to the members of the branch to attend the Annual General Meeting of the Yorkshire Federation of Poultry Societies, which will be held in the Co-operative Assembly Room, Brunswick Street, Keighley, on Saturday, December 20th, commencing at 3 p.m. prompt.

He also assured them there was a treat in store for them if they attended the public meeting, commencing at 6.30 p.m., the same evening, when Mr. Francis, Commissioner of Poultry to the Department of Agriculture, Whitehall, London, would give a lecture. Mr. Snowden appealed for a good attendance to show the members and public appreciated the honour conferred upon them by Mr. Francis.

It was resolved to hold a Show of hatching and commercial eggs on January 14th, when Mr. Ernest Croft, Hessay, York, will attend to judge the eggs and give a lecture on "From Shell to Maturity."

Four new members were enrolled during the evening.

A. WILSON, Hon. Sec.

BRITISH MINORCA CLUB.

The Annual General Meeting of Members of the above Club was held at Leicester, on November 5th. Present:—Messrs. J. H. Knowles Morgan (in the chair), B. W. Bonas, Walter Heys, R. Beels, J. W. Lowe, J. T. Farrar, G. R. Smith, H. Jenkins, F. W. Seed, J. W. Cooper, J. B. Lomax, J. S. Tagg, W. Whittingham, L. Timson, F. Tootill, and the Hon. Sec. and Treasurer.

The minutes of the last meeting were passed as read by the Hon. Sec., on the motion of Mr. F. W. Seed, seconded by Mr. J. W. Cooper.

The balance sheet was adopted on the motion of Mr. F. Tootill, seconded by Mr. B. W. Bonas.

The Hon. Sec. reported that many members had not paid their subscriptions, and was given instructions regarding same.

Officers were elected as follows:—President, Mr. J. H. Knowles-Morgan; Chairman, Mr. F. Tootill; Vice-Chairman, Mr. F. W. Seed; Hon. Sec. and Treasurer, Mr. Lincoln Tootill. With the exception of Mr. B. Moss and Mr. H. McFarland, the retiring committee was re-elected, as was also the Executive Committee and Club Judges.

The following new members were elected:—Mr. A. Sidney Marsh, Fleet; Mr. G. A. Ghijsels, The Hague, Holland; Mrs. Nancy Claye, Great Harwood; Mr. H. J. Haynes, Oxford; Mr. H. Jenkins, Kirby Muxloe; Mr. Lewis Timson, Burton Latimer; Mr. Wm. Whittingham, Cabus, near Garstang; and Mr. Walter Heys, Ainsworth.

It was decided to continue affiliation with the Poultry Club, but after some discussion it was decided to withdraw from the National Poultry Council, this step being taken on account of recent financial arrangements entered into by that body, and which it was felt would unduly cripple its activities.

It was decided that the next Club Show be held in conjunction with Birmingham Show, with the same classification as at this year's show, Judge, Mr. R. W. Webster, to take all classes.

After other interesting matters had been discussed. a most successful meeting terminated.

LINCOLN TOOTILL,
Nabb Fold, Harwood, Bolton. Hon. Sec. and Treasurer.

DISINFECTION OF HOUSES.

To the Editor of "Eggs."

Dear Sir,—I am writing this, hoping it will be helpful to other readers of your excellent paper, "Eggs."

I had occasion to empty a house of fowls to a new one, and thoroughly cleaned the old one out.

When clean and dry I sprayed all the inside with Izal disinfectant, and then put some of the birds back again.

I visited the house at night, and noticed the birds were still restless.

Next day I painted the perches, and all round the ends; the sockets in which they fit are pillars of wood nailed on the side of the house. I thoroughly soaked the sides round about and the sockets with creosote (from local gasworks).

Next day, by accident, I broke the sockets from the side, and examining the side which was next to the side of the house I found it covered with hundreds of red mite (small red insects). I looked at the other ends and saw the creosote had chased them out from there, but they were all dead. On the perches also (after the birds had roosted one night) I found dozens of body lice dead.

So now I paint all the perches and sockets once fortnightly with creosote.

I think this proves that creosote is about the best disinfectant for such insects as we have at out disposal.

Hoping this is useful, I will close, but must say I find plenty of good advice and knowledge from "Eggs."

J. S. GREEN.

A CLUB FOR WHITE BRESSE.

To the Editor of "Eggs."

Dear Sir,—It has been suggested to me by several breeders of White Bresse that a Specialist Club should be formed to look after the interests of this beautiful and useful breed of fowl.

I would be pleased to hear from anyone interested in this matter. I am willing to act as Hon. Secretary till a meeting can be called and the club officers elected.

J. S. FENWICK.

Crossways, Great Barton,
Bury St. Edmunds, Suffolk.

6, Rochester Place, Elland.

Dear Sir,—May I take this opportunity of complimenting you on "Eggs." It is a real poultry-keeper's friend, and worth all the other poultry weeklies put together.

Yours faithfully,

(Signed) H. CARTER.

The Great Show at Olympia.

That it was a great show, no one will dispute. The pity of it is that the public either failed to realise it, or that it was not sufficiently advertised, or that there are too many shows, or that the fog was too much for many people from the country districts to brave. My private opinion is that there are too many shows, and that those responsible for Olympia would do well to secure the services of a bright advertising agent, and place themselves in his hands, also that in the terests of stall-holders, a reduction of the price of admission would be advisable.

We had a great number of callers at the S.P.B.A. Staand, which was very attractive, and we had much of interest to show them. It was a pleasure to meet so many of our old members and readers of "Eggs." The all-absorbing topic of conversation was the price of foodstuffs and the price of eggs. There are some who are inclined to be pessimistic, and others who were optimists. There is not much use in being either. The man who faces the facts squarely, and gets on with his job, hasn't time to worry, and so pulls through.

How keen is the interest taken in food samples! I had taken a sample of middlings, which had been sent me, and sifted it. The quantity of fine bran in it was nearly 50 per cent., and it was a fair sample of many that are sent me. It is not surprising that there are complaints of lack of eggs.

One of the most interesting and instructive exhibits in the show was the "Daily Mail" stand, where, in addition to Miss Marjorie Fowler's pen of White Leghorns, which won the test at Bentley, were examples of the Sex-Linked Crosses. Perhaps the most striking of these was the R.I. Red x Silver Campine, bred by Colonel Lucas. They were remarkably handsome, and from the general appearance I should say would prove first-class layers. For sheer beauty I know of no cross to equal this. R.I. Red x Black Leghorn would not give sex-linked characteristics, but if any of our readers favour crosses this is one which deserves their attention. In the Light Sussex x White Bresse we have a good layer and fine table bird. It was striking to see how the "smutty" face of the Bresse persisted. Other crosses were Golden Buttercup and White Wyandotte, Brown Leghorn, Light Sussex, which seems very popular; Cuckoo Leghorn and Black Leghorn. The value of this latter cross is difficult to understand, as the Black Leghorn in itself is hardy enough, and a good layer of large eggs. Whether the wholesale cockerels or cockerels' chicks when hatched is an economic proposition or no, has yet to be determined.

Turning to the birds themselves, I am convinced that the utility shows have done good in one respect. The fancier is beginning, in some varieties at least, to realise that extremes do not pay. I am speaking more particularly of what we know as utility breeds. The same may, to some extent, be true of the utility breeder. There is a very distinct improvement in both type and colour. At the same time there is a distinct tendency on the part of some of the judges to pay too much attention to colour, and in more than one show this season awards have been made to birds on this account, which it did not need great expert knowledge to know, would, as layers, do no more than pay for the food they consumed. It is curious to note the change in the judges. Two or three years ago the bird that handled well won; type counted for little. Such is not the case now. They are out for type. That is all to the good, but there is some danger of going to the other extreme, and certainly some of the awards have been given to birds which it did not require very expert knowledge to see, would never have shone in a laying test.

The utility classes were well supported, and quality on the whole was good; interest is keen; complaints are pretty numerous, however, this season, that exhibitors do not know what the judges are after. I much question the value of a utility standard. Still there should be some measure of agreement between judges.

The Fancy has killed the Orpington. Both Blacks and Buffs showed a big drop, and Whites were far from being up to the standard of previous years. It will not take long now for the Orpingtons to be relegated to the "has beens" if something is not done. What a change. Ten years ago they were the most popular breed in the country. I was pleased to see the Dorkings so well represented. The pity is that they are in such few hands. Croad Langshans are evidently gaining in popularity. They were the best show I have seen for years. This year no utility classes were provided for them. One is pleased to note this, for the club standard is all that is needed to satisfy both the fancier and utilitarian. It is a pity that we have not a few more specialist clubs like the Croad and the Sussex. Barnevelders had a much bigger entry, and show a distinct improvement. In conversation with one or two breeders, I find that with increased production there is a tendency for the eggs to lose colour. That is what one expects, but size of egg is well maintained. It is a great pity that with a new breed like this there should be any need for utility classes. Bresse have made a wonderful advance, and there is no doubt that they have a big future before them. The Blacks are a mixed lot; the winning pullet was far from typical, and might have been mistaken for a Minorca. It was hard to follow the judge here. The Whites were more uniform than the Blacks. It is to be hoped that the club will insist on the standard. I am afraid of this Minorca type in the Blacks. Buff and Barred Rocks were a splendid show, and there is no doubt that both varieties are rapidly gaining in popularity. It is puzzling to know why the Rhode Island Red shows such decreased entries this year. If there was no decline in quality, there was no improvement. Sussex were a fine lot. The Red is making headway. Buffs have a long way to go before they will find a following. Leghorns were much as ever, but there does seen to be some evidence that breeders are getting back to White Leghorns as we knew it before they put it on stilts. Exchequers were numerous, but the diversity of colour was a little confusing. Blacks had a large following. One cannot, however, say that quality was superlative. Australorps were a strong entry. There is still a diversity of type, but there is distinct improvement in this respect.

Wyandottes maintain their popularity. In the utility classes I thought there was a great improvement in type, and the fancier is not running to such extremes as was the case three or four years ago. All this is in the best interest of the breed. Campines were a really wonderful show, but the breed does not advance in popularity. Is it because they are supposed to be delicate? That rumour was circulated years ago, and it is hard to kill the idea. The question is very frequently asked me.

I was much impressed with the interest appliance makers are taking in the question of ventilation, particularly of brooders. The S.P.B.A. has done good work here, in being the first to draw attention to this important question, and giving it such prominence in these columns. The articles which have appeared have made a big impression on the public mind, and numerous questions were asked me at the stand on this subject. Everyone realised the value of Mr. Somerville's articles.

COUNTY COUNCIL OF DURHAM.

EDUCATION DEPARTMENT.

Poultry-Keeping Scholarships.

1. Two scholarships are offered each term, at the beginning of September, January and April, i.e., six in any one year.

2. These scholarships provide a course of training of twelve weeks' duration in the practice and theory of Poultry Husbandry. They are tenable at the County Poultry Station, Houghall, and include free training and board and lodging.

3. Applicants may be of either sex and must be over sixteen years of age at the date of the commencement of the course.

4. The holders will be required to take part in the ordinary daily work of the station, and generally to work under the direction of the Poultry Instructor.

5. In addition to the practical instruction, the Poultry Instructor will deliver six lectures per week, covering the following syllabus:—

(1) **Incubation**: Principles of heat, humidity and ventilation; Embryology, etc.

(2) **Chicken Rearing**: Its general principles: Growth; Bone and Body formation; Principles of Feeding Chicks; Chick Diseases.

(3) **Foodstuffs**: Composition—(a) Mineral, (b) Vegetable, (c) Animal; Ratios and Equivalents; Digestibility, etc.; Metabolism in relation to feeding; Requirements of Poultry—(a) Breeding, (b) Egg-laying. (c) Fattening.

(4) **Breeding**: Principles of Fertilisation and Reproduction; Principles of Mendel (Dominants and Recessives); Psychology and Types; Sex Linkage.

(5) **Fattening**: Principles involved; Killing; Plucking; Trussing.

(6) **General**: Anatomy and Physiology; Cell Structure.

(7) **Diseases**: External and Internal; Surgery; Elementary Bacteriology; The Blood; Post-Mortem Examination.

(8) **Carpentry**: Kinds of timber; Measuring; Cutting; Joints, etc.; Foundations; Roofing Materials, etc.; Principles of Light and Ventilation.

(9) **Book-keeping**: The Journal, Cash Book, etc.; Stock Books; Stores Books; Pedigree Recording; Trap Cards, etc.

(10) **Horticulture**: During each course the Horticultural Instructor will give one or two lectures on Horticulture in relation to Poultry-keeping.

6. Application must be made on Form G.1., which may be obtained from the undersigned, and should be completed and returned as directed on the form not later than 30th June, 31st October, and the 31st January, for the courses commencing in September, January, and April, respectively.

A. J. DAWSON,
Director of Education.

What our Readers think of "Eggs."

The Lodge, Copsewood Grange, Stoke, Coventry.

Dear Sir,—I would like to say how much I appreciate your helpful paper, which I have taken up again recently (about two months). I may say I have just started poultry as a business proposition in the nature of a side line to gardening, and, owing to pressure of york, cannot give the time to it which it deserves. However, so far, results are very gratifying, thanks to "Eggs."

I remain, yours faithfully,
(Signed) F. JESSUP.

21, Arthurdon Road, Brockley, S.E.4.

Dear Sir,—You may be interested to know that I have forsaken all other poultry journals, and cleave only unto "Eggs." I share the just appreciation of your other correspondents.

Yours faithfully,
(Signed) R. E. HOOK.

The Pinfold Poultry Farm, Tingewick, Bucks.

Dear Sir,—We tried all the poultry papers in turn until we found "Eggs," and since then we have been regular readers, as there was no other so useful to us.

Yours faithfully,
(Signed) R. and W. WICKENS.

Givenchy Poultry Farm, Madeley, Salop.

Dear Sir,—I should here like to express my appreciation of the good work done by the N.P.C., and also of the splendid work done by yourself and the members of your staff in the publication of "Eggs." I feel I must congratulate you on the wonderful strides you have made, and thank you for the value you give us for our 2d.

Wishing you greater success.

I am, your sincerely,
J. E. G. ASTON.

180, Crookes, Sheffield.

Dear Sir,—Please find enclosed P.O. for 5s. for the renewal of my membership in the above Association.

With best wishes for its continual helpfulness to all its members, great and small.

I should like also to express the same sentiments towards "Eggs," of which I am a continual reader.

I remain, yours sincerely,
(Signed) GEO. H. WARD.

"Sun Cottages," Burghfield Common, near Reading.

Dear Sir,—May I say that the previous S.P.B.A. pamphlets have proved of considerable help to me, and that "Eggs" is a weekly source of interest and enjoyment eagerly looked forward to. Wishing your Society increased membership and power in the forthcoming year (1925), and thanking you for excellent articles week by week.

I am, Sir, yours faithfully,
(Signed) H. E. VINER.

The Willows, Haydock.

Dear Sir,—I take "Eggs" weekly from my local newsagent, and out of the six papers I take it is the only one I can take and read from beginning to end.

Yours sincerely,
(Signed) A. PIMBLETT.

Dear Sir,—I have long been a reader of "Eggs," and most of the other poultry papers, and must say I find the former the most interesting and instructive of all. Further every purchase of stock and appliances which I have made from advertisers in "Eggs" has been entirely satisfactory, which is more that I can say about the others.

With best wishes for its continued success.

Yours faithfully,
(Signed) C. F. CARTER.

23, 8th Avenue, Bey Valley, Johannesburg.

Dear Sir,—Please receive my best thanks to you and the many contributors to your paper "Eggs" for the very valuable help received. I appreciate it and thank you.

Yours very respectfully,
(Signed) A. L. SUTHE.

Ifield Valley Poultry Farm,
Shorne, near Gravesend, Kent.

"Dear Sir,—I have pleasure in enclosing cheque for double my last year's subscription, and in doing so consider it one of the best investments I can make. Further, as my little farm grows, I hope to increase my subscription in proportion.

"The Association is doing splendid work, and the fair, open-minded criticism expressed with, at all times, such a good-natured spirit in 'Eggs,' makes one proud to be associated with such an organisation. To you, Mr. Secretary, is due the major portion of the qudos, and may you continue for many years to carry on this excellent work, is the wish of

Yours sincerely,
F. CLAUDE BUTCHER (Capt.).

SUSSEX POULTRY CLUB.

The Annual General Meeting was held at the Crystal Palace on Wednesday, November 19th, at 4 o'clock. Mr. James Russel, the retiring President, was in the chair, and there was a large attendance of members. Apologies were received from Capt. Joynson, Major Godfrey Munday and Mr. Clem Watson, who has been appointed Secretary in the place of the Rev. Harold Mayall, who has resigned the secretaryship owing to pressure of other work.

The minutes of the last Annual General Meeting were read, confirmed and signed. The Chairman apologised, on behalf of the Secretary, for an oversight in the date of sending out the nomination papers for the election of officers, but the meeting unanimously agreed that the voting papers, as sent in, should stand.

The report of the scrutineer with regard to the election of officers was then read. Mr. James Russel was re-elected President. For the Committee, in the place of Mr. C. N. Goode, Mr. Horton-Jefferson, Mr. S. C. Sharpe and Major Morrison, the retiring members, the following were elected:—Mr. C. N. Goode, Mr. J. W. Golding, Mr. H. S. Hodges, Mr. G. E. Howard, and, to take the place of Mr. Watson, now Secretary, it was proposed by Mr. Marshall and seconded by Mr. Cree, that Capt. Garfit, the next in order on the voting list, be elected to the Committee. A list of the judges elected will be published in the next Year Book.

It was then proposed by Mr. Horton-Jefferson and seconded by Mr. Outram "that the Club Show be held at the Palace in 1925."

A discussion on various resolutions, which the Committee had ruled were out of order at the General Meeting, then took place. Eventually the following proposition, arising out of a proposition by Mr. Outram, was made by Mr. Marshall and seconded by Capt. Garfit, and carried unanimously, "that in future the judges for the Club Show shall be elected by a postal vote." Arising out of a resolution by Mr. Horton-Jefferson, it was proposed by Mr. Marshall and seconded by Mr. Fleetwood Ashburnham, "that the Committee be instructed to draw up at once a scheme for the encouragement of the breed in the North and West of England, and to put this into execution as soon as possible."

Mr. Grant's resolution with regard to certain alterations in the rules for Egg-Laying Trials was unanimously adopted. These will appear fully in the Year Book.

The Secretary then read the report and balance-sheet for 1924. It was proposed and carried unanimously that these be adopted. The Committee were able to report that there is the amount of £28 7s. on deposit, to the credit of the Club, and a balance of over £9 on the General Account.

After a vote of thanks to the Chairman, the meeting terminated.

CLEM WATSON, Hon. Sec.

Oxhey, Watford.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, DECEMBER 12th, 1924.

GRAIN AND FEEDING STUFFS.—A moderate trade passes for English wheat, and prices are again slightly reduced, except at Bristol. Imported descriptions are also rather cheaper on the week, but a steadier tone prevailed at the close. Quotations for other cereals are maintained in a few instances, but the majority show a reduction, only a quiet trade being experienced generally. Finest samples of English malting barley continue in demand at London, and stocks are now nearly cleared.

Milling offals continue to meet a rather dull enquiry, and a further drop in price is shown at all centres. British bran now averages £8 6s. and coarse middlings £9 12s. per ton, against £8 13s. and £9 17s. respectively, last week. Quotations for all kinds of oil cakes are still further reduced.

MILLERS' OFFALS.—Bran (British): Bristol, £8 12s; Hull, £8 2s; Liverpool, £8 10s; London, £8. Broad Bran: Hull, £9 7s; London, £9 5s. Middlings—Fine (Imported): London, £10 7s. Coarse (British): Bristol, £10; Hull, £10; Liverpool, £9 5s; London, £9 2s. Pollards (Imported): Bristol, £8 15s; Hull, £8; Liverpool, £8 12s; London, £8. Rice Bran: Bristol, £9 7s; Liverpool, £9. MEAL.—Barley Meal: Bristol, £12 12s; Hull, £13; London, £12 17s. Maize Meal: Bristol, £11 15s; Hull, £11 3s; Liverpool, £11 2s; London, £11 7s. Maize Meal (S. African): Hull, £10 10s; Liverpool, £11 5s. Maize Germ Meal: Bristol, £12; Hull, £11 5s; London, £11 5s. Maize Gluten Feed: Bristol, £11 17s; London, £11 5s. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 15s; London, £10. Bean Meal: Bristol, £14 5s; Hull, £13 8s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £21.

EGGS AND DEAD POULTRY.

English eggs are again lower in price, while nearly all imported supplies, which are large, are cheaper, with anticipations of still lower prices in order that stocks can be cleared. A fair enquiry is reported at London for Argentine eggs, which can be retailed at 2¼d. each. Large supplies of poultry are on offer, and some descriptions of chickens and turkeys are cheaper at London, but trade is only moderate at present.

Week-end Prices—Eggs (per 120): British, 30s 6d, 28s 0d; Irish: 26s 0d, 24s 6d; Danish: 28s 6d, 26s 0d; Dutch: 29s 0d, 26s 0d; Australian: 23s 0d, 22s 0d; Belgian: 27s 6d, 26s 0d; Italian: 24s 6d, 22s 0d; Egyptian: 13s 3d, 12s 6d; South African: 22s 0d, 18s 0d.

Dead Poultry (per lb.): Fowls—Surrey: 1s 7d, 1s 5d; Irish: 1s 2d, 1s 0d; Others: 1s 3d, 1s 1d. Ducks: 1s 2d, 1s 0d. Geese: 1s 2d, 1s 0d. Turkeys: 1s 9d, 1s 6d.

EGGS.

Per Doz.—Ashford: First, 2s 6d; Second, 2s 3d. Birmingham: First, 3s 2½d; Second, 3s 0d. Bridgwater: First, 3s 0d; Second, 3s 9d. Carlisle: First, 3s 0d. Chelmsford: First, 2s 9½d; Second, 2s 7¼d. Denbigh: First, 2s 9d; Second, 2s 7d. Denby: First, 3s 0d. Dorchester: First, 2s 9d. Exeter: First, 3s 0d. Hereford: First, 2s 6d. Ipswich: First, 3s 0d; Second, 2s 9d. King's Lynn: First, 2s 9d; Second, 2s 6d. Lincoln: First, 3s 0d. Llandilo: First, 3s 0d; Second, 2s 9d. Montgomery: First, 2s 6d. Newport (Mon.): First, 3s 0d; Second, 2s 10d. Norwich: First, 2s 6d. Oswestry: First, 2s 9d; Second, 2s 8d. Penzance: First, 2s 3d; Second, 2s 0d. St. Ives (Hunts): First, 2s 7¼d; Second, 2s 6d. Salisbury: First, 2s 5d; Second, 2s 3d. Shrewsbury: First, 2s 9d; Second, 2s 6d. Skipton: First, 3s 4d. Truro: First, 2s 6d. York: First, 3s 3d; Second, 3s 2d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 9d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 8d; Second, 1s 6d. Lincoln:

(Continued at Foot of Next Column.)

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, December 17th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue.. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

First, *5s 6d; Second, *3s 6d. Llandilo: First, 1s 5d; Second, 1s 2d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Skipton: First, 1s 4d; Second, 1s 2d. Truro: First, 1s 5d. York: First, *6s 6d; Second, *5s 0d.

DUCKS.

Per lb.—Birmingham: First, 10d; Second, 8d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 3d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Llandilo: First, 1s 5d; Second, 1s 3d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, 1s 6d; Second, 1s 4d. Skipton: First, 1s 4d; Second, 1s 2d. York: First, *6s 6d; Second, *5s 6d.

* Per Head.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS,	per line, extra		9d.
DAY-OLD CHICKS	„	„	1s.
DAY-OLD CHICKS	„	„	1/6

The number of letters, punctuations and spaces between words should be totalled, when the following table will be of assistance:—

9d. size allows for Thirty-one to one line.
1/- size allows for Twenty-seven to one line.
1/6 size allows for Twenty-one to one line.

When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3	insertions	for the	price of	2
6	„	„	„	4
9	„	„	„	6
13	„	„	„	8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office
FIRST POST FRIDAYS
for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit, the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

EGGS.

FOR SALE.

Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faverolles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

EGGS AND CHICKS.

FOR SALE.

Day-old Chicks, 15s. doz.; W. Wyandottes, Barred Rocks, R.I. Reds, Light Sussex, White and Brown Leghorns. Free Range. Eggs, 7s. 6d. doz. Orders booked.—George Gilbert, S.P.B.A., Busveal, St. Day, Cornwall.

Eggs determine feeding costs

IT'S not the cost of feed that counts, it's the cost of producing eggs.

Ful-O-Pep Mash makes fowls lay better eggs and for a much longer laying period. At the same time it increases stamina and constitutional vigour. That is why Ful-O-Pep eggs are so economically produced.

Ful-O-Pep-raised birds are "full of pep." See their wonderful health and vigour—look at their glossy and well-grown plumage. A feed that will grow good feathers always produces best conditioned birds—the kind that lay best and longest.

Ful-O-Pep Mash is made from eleven different ingredients and contains just the right amount of amino acids and minerals scientifically blended.

FUL-O-PEP
TRADE MARK
LAYING MASH

NO MIXING: NO HEATING WATER: NO TROUBLE

The Ful-O-Pep Handy Monthly Guide tells you all about correct feeding. Save time and money by sending a postcard for a copy to-day. This book has detailed suggestions for every month in the year. It also contains 12 monthly egg charts for you to record your eggs. Free and postage paid.

Made and Guaranteed by
QUAKER OATS Ltd., 11, Finsbury Sq., London, E.C.2.

EGGS AND CHICKS.

FOR SALE.

Eggs and Chicks from a Moorland Hill, where stamina with other inherent qualities are prevalent in a stock of Wyandottes and Leghorns. For
PROOF
see position in Midland and Yorkshire Tests. Illustrated Catalogue now ready.—Allan Thomson, Gowanbank Pedigree Poultry Farm, Avonbridge, Stirlingshire.

Light Sussex Eggs, Lister's strain; 6s. 6d. dozen.—Morris, Gate Farm, Battle.

R.I.R., sisters silver medal winners, Bentley; sire's dam 283. White Wyandotte, sisters 1st Midland winners, 238-260; sire's dam 275. Light Sussex, Rothschild's. Black Leghorn, 238-260; sire's dam 266. White Leghorn, 200-250; sire's dam 273. Eggs, 7s. 6d. doz.; 50s., 100. Chicks, £1, doz.; £6, 100. — Ekins, S.P.B.A., Grange P.F., Wellingborough.

Light Sussex, Dr. Phillips' Strain of Winter Layers. Chicks for Sale January 4th, 15s. and 21s.; satisfaction guaranteed. Book early. Illustrated list free.—Barrowmore, 4, Great Barrow, Chester.

Customer for Day-old Chicks for coming season. White Leghorns, Anconas, White Wyandottes, Rhodes, Sussex; particulars.—Bisdee, De Montfort Estate, Lewes.

Hatching Eggs by return. Pedigree Rhodes, winter layers, large eggs, 7s. 6d. dozen; 27s. 6d., 50; 50s., 100. Lade, N.U.P.S., B.R.I.R. Club, Four Marks, Alton, Hants.

WHITE LA BRESSE.

Orders now being booked. Eggs, 10s.; Day-Olds, 20s. dozen. Delivery December onwards.—Hemelryk, Old Mill House, Partridge Green.

FAWN AND WHITE RUNNERS.

Orders now being booked. Eggs, 6s.; Day-Olds, 12s. doz. Delivery January onwards. —Hemelryk, Old Mill House, Partridge Green.

MARSH DAISIES.

Orders now being booked from February onwards. Output sold for December-January. Eggs, 12s.; Day-Olds, 24s. —Hemelryk, Old Mill House, Partridge Green.

BROWN LEGHORN-LIGHT SUSSEX.

Sex -linked, hatching weekly. Pullet Chicks, 30s. dozen; Cockerel Chicks, 12s. dozen. Eggs, 8s. 6d. dozen.—Roberts, Great Bromley, Colchester.

SPRING CHICKS!
SPRING CHICKS!

Thousands of Fertile Eggs available from large-framed Light Sussex; 50s., 100; £11 5s. 500; £21 5s., 1,000. Assorted Sussex, R.I. Red, Buff Orp., White Wyandotte, and Barred Rock Eggs; 45s., 100; £10, 500; £18 15s., 1,000. Unfertiles not replaced; 85 per cent. fertility guaranteed. Order now before the rush. Eggs ready now, or can be despatched on dates specified, if booked in time. Day-Old Chickens available from January. We have a flock of nearly 5,000 hardy, healthy birds. Send for Illustrated Catalogue, free.

EASTMAN BROS.,
SUFFOLK POULTRY FARM,
HADLEIGH.

R. S. KEEP, S.P.B.A.
EAST BUDLEIGH, DEVON.

WHITE WYANDOTTES.
RHODE ISLAND REDS.
BUFF ROCKS.
HATCHING EGGS.
DAY-OLD CHICKS.
CUSTOM HATCHING.
ALL BEST UTILITY TRAP-NESTED STOCK.
FULL PARTICULARS ON APPLICATION.

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association
WEDNESDAY, DECEMBER 24th, 1924.

Editorial.

COMMERCIAL EGG FARMING.

A correspondent writes :—" Some time ago I called on you and discussed briefly certain plans I had in mind in connection with commercial egg farming. You were good enough to give me your ideas as to the nett profits which could be reasonably expected. At the time I thought your figure was a satisfactory one.

" In the current issue of ' Eggs ' you discuss Mr. Slade's letter, and I am especially interested in your remarks. In the first few paragraphs you appeared to be rather despondent, and in view of your rather disconcerting outlook I would like to ask you two questions :—

(1) Is commercial egg farming still a sound proposition?

(2) Is it likely to continue a sound proposition? "

We feel that a great responsibility devolves upon us in attempting to answer these two questions. We are sorry that the opening paragraphs in the article to which he refers should have conveyed the impression that we were despondent. That is not the case, but it is not always easy to distinguish between the man who is pleased to call himself an optimist, and the cheerful idiot, nor between the one who is happy to be described as a pessimist, and "dismal Jemmy." It is far better to look facts squarely in the face.

We would answer his two questions, then, definitely in the affirmative. Commercial egg farming is still a sound proposition, it will continue to be a sound proposition. But—and it is a big but—it is also a business proposition ; it is not the last resource of the fool of the family. You cannot play golf three times a week and run a commercial egg farm successfully. There is a story of two farmers which to some extent illustrates what we mean : The failure asked the successful one to explain why he succeeded, and to account for his own failure. The reply was : "Well, you say to your men, GO and do so-and-so ; I say to mine, COME and do it."

Everyone of us must realise that the profits to be made from egg farming are not comparable what they were immediately after the war. It was frequently pointed out in these columns that such a margin of profit could not be expected when times became normal again, and the time has now come. The big profits obtained in those days made many of us careless, very high mortality did not cause the anxiety that it does now, and even those with a very small measure of experience were able to make a fair livelihood for a year or two.

It was said that the number of eggs imported would never reach again the pre-war standard. That statement has proved incorrect, although the imports have very materially influenced prices ; there are other factors which have had a very decided influence. There is, first, the general depression in trade ; the period of high prices has become shorter, and that of low ones more prolonged, although our readers may differ from us on this point, we believe that trade depression accounts for this more than anything else. Therefore we may hope that with returning prosperity higher average prices will be realised. This, however, is but tinkering with the situation. It is the entire lack of organisation which is the weak point, there is too much competition and too little co-operation among producers, and it seems to us that a conference could be held with advantage to everyone, even if nothing material was effected. A healthy discussion would prove very helpful.

There is no need for despondency, but there is need to grapple with the situation, and not accept it as inevitable. If there was any real organisation it is certain that some control of the market could be secured, and higher average prices obtained, and perhaps some reduction in the costs of production. What is really appalling is the utterly unbusinesslike manner in which many of our commercial egg farms are carried on. There are many who buy in the highest market and sell in the lowest, and we speak from experience when we say that the waste on many of the farms is sufficient to explain failure.

Our correspondent goes on to say :—

> " With regard to my questions, it is perhaps only fair to give some idea as to what results would constitute a sound proposition. I take it that all commercial men, when reviewing their undertaking, look first at the business side. I believe a capital outlay of something like 30s. per bird is required, and if a nett profit of 5s. per bird is shown in audited

(Continued at Foot of Column on Next Page).

Modern Poultry Feeding.

By **TOM NEWMAN.**

THAT VITAMIN IN TEA.

The discovery of the vitamin in tea was the result of observations that tea-drinking peoples, including Chinese, Japanese, Irish and English, are longer lived than *some* other nationalities. Now we can generally prove what we want to prove, at least to our own satisfaction. Your temperance reformer trots out some individual who has passed the century, and complacently informs us that he has been a total abstainer and non-smoker, as a convincing proof of the value of abstinence. A week later the brewers find someone who has lived a few months longer, who has taken so many pints of beer per day, and smoked so much hard twist, as a convincing proof of the value of beer and tobacco. A few years ago we were told that the Serbians attained long life because they took so much sour milk per day. I have a dim recollection that once upon a time it was customary for some people to take a certain quantity of common salt in the expectation of a longer life, and there are any number of people who take salts as regularly as they take their breakfast, who believe that they are all the better and healthier for it—blessed are the uses of advertisements! If they knew that 75 per cent. of them were Epsom Salts, they would have a headache next morning.

What is of importance to us to remember is that the health and vigour of our stock depends on no particular constituent in a food; that a deficiency of any one of them means an unbalanced ration, and an unbalanced ration means malnutrition, which undermines the constitution, and renders the stock peculiarly susceptible to disease. This is, of course, true of the excess of any constituent. When we talk of a balanced ration we have only the definition of what we believe to be one—that is the different constituents in their proper proportions. We don't know what these proper proportions are. It is certain that a ration, which is suitable for the low producer, will not answer for her highly-fecund sister, and that the study of feeding will not help us, unless we take more carefully into consideration other environmental factors, and more particularly study our stock.

I have been asked to criticise the following mashes (wet):—

(1) Bran 2, midds. 4, maize meal 1, ground oats 1, yeast and fish meal ½lb. each.

(2) 5 Kossitos, 5 middlings, 4 ground oats, 2 maize meal, 2 fish meal, 1 bran.

(3) 4 midds., 3 flaked maize, 2 ground oats, 1 fish meal, plus 4 per cent. dried yeast.

The first would be better if the bran was reduced to one part; there is an unnecessary quantity for a wet mash. No 2 contains both kossitos and maize meal. As the former is principally cooked maize, the combination is unnecessary and undesirable. It would be better to omit the maize, as the kossitos being cooked is the more digestible; two parts would be sufficient, and the middlings should be increased to six parts. (3) is too fattening for egg production. I would reduce the flaked maize to two parts, and the ground oats to one part.

QUALITY.

I was deeply concerned at Olympia at what so many of our members told me respecting foodstuffs, and the difficulty they experienced in getting good samples. More particularly does this apply to bran and middlings. Where bran is so inferior, as described to me, it is useless to feed it. To compensate for this use more middlings, and see that there is not too much fine bran in this. Where inferior foods are used, there is under-nutrition, and when this occurs, and it is far more prevalent than is generally known, there is not only poor production, but there is necessarily greater susceptibility to disease. Something will have to be done, but it is useless to attempt anything without we have the fullest support of our members. There is to be a Council Meeting on Wednesday, when consideration will be given to the report of the committee appointed on the instructions of the General Meeting, to consider what steps can be taken to purchase foods for members. We want to ensure quality—bran that contains some nutriment, middlings which are not 50 per cent. bran, ground oats that are not adulterated with tapioca root, or have a high percentage of oat husk meal added; fish meal which is not made from the refuse of the market. That would be a very great gain, even if we were not able to effect a reduction in prices, which, of course, we expect to do.

EDITORIAL.—Continued.

accounts and after allowing for all labour charges at the market rate, it represents about 16½ per cent. This I should think would be regarded as satisfactory, particularly by people who have a liking for the life. I mention these figures purely for the sake of illustration, as I believe it to be possible that the capital per bird can be reduced by several shillings, and that there are egg farms being run to-day showing a profit of 10s. per bird.

I would put the suggestion forward that it would be of very material assistance to the industry if successful egg farmers would permit their accounts to be published. Their name need not appear so long as the figures appear in your paper. Most readers, I think, would regard them as authentic."

We leave this for our readers' consideration, but there are no egg farms to-day which show a profit of 10s. per bird from the commercial egg.

"Eat More Eggs" Campaign.

The National Poultry Council's appeal for funds for the preliminary expenses of this campaign has not met with the response which was expected.

Possibly this, to some extent, may have been due to the fact that high prices were ruling at the time the appeal was made.

There has been a sharp decline now, which we must expect will be progressive. It has been truly said that the period of high prices becomes shorter every year, and that of low prices is more prolonged, which, translated into English, means that average prices show a tendency to decline.

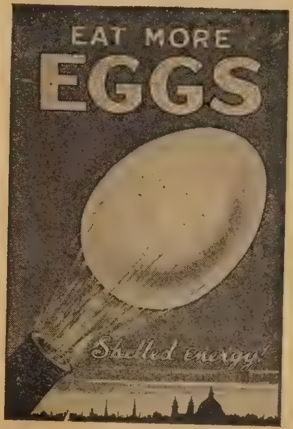
One of the objects of the "Eat More Eggs" Campaign is to secure a greater consumption of eggs by bringing vividly before the public, by means of posters as illustrated below, the value of eggs as a food. A greater consumption will tend to a rise in price, which can only be to the advantage of the producer.

Surely the scheme is worthy of support?

There are those who whine about hard times, and who are despondent as to the future of the industry. May we suggest that you cannot expect to get anything out of it unless you put something in.

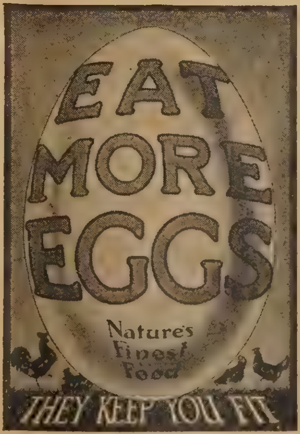
The success with which campaigns of this kind have been conducted to improve the demand for bananas, tomatoes, fruit and other articles, should induce poultry farmers to interest themselves in this appeal.

EAT MORE EGGS—
'E MAINTAIN A HEALTHY BALANCE



He must eat more Eggs—

NATURAL FOOD AS NATURE MAKES THEM
Eat more
ENGLISH EGGS



Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Major C. G. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Major Saunders.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Major Saunders).

ALL questions should be addressed to the Editor. Major Saunders does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Sailor Jack (Longfield) asks, if he mates a Rhode Island Red cockerel to White Leghorn hens, will he be able to tell the sex of the chicks at hatching? No, Jack, there is no cross with the White Leghorn which will enable you to detect the sex of the chicks when hatched.

H. (Harlow) has 300 heavy breeds on free range. Except for snow and rain he has left them out in the open. He wonders whether, now the ground is so wet, it would be advisable to keep them in the houses, and only let them run out in dry weather, and what floor space he should allow. One must judge by circumstances, in biting winds with water on the surface the birds will do better if confined to the house. They will not hurt on merely wet ground if they have a dry house to come to. Three square feet of floor space would be sufficient under such conditions.

S. E. A. (Rotheram) asks if in the calcium salt mixture, 60 parts bone meal, 20 common salt, 20 oyster shell dust, the parts are by weight or measure, whether the oyster shell need be ground as fine as flour. Is the bone meal cooked or raw? Will five ounces to every 10 lbs. of mash be sufficient? The parts are by measure. The shell need not be ground as fine as flour; the bone meal is cooked; five ounces to every 10 lbs. of mash is sufficient.

Satisfied (Bowers Gifford) wants a mash by measure for his White Leghorns, which are kept intensively. The following will answer his purpose:—One measure of alfalfa meal, 2 bran, 4 middlings, one maize meal, half meat and bone meal. Grain feed:—Three parts kibbled maize, one wheat.

Lincolnshire. Will you please send your name and address. We cannot answer anonymous letters.

G. L. (Chelmsford). Under the conditions named I should prefer the Buff Rock to the White Wyandotte; your other choice, the Black Leghorn, is excellent.

M. B. (Derby) has had bad luck with White Wyandottes. Eggs were purchased from a breeder who has been successful in the laying tests. Hatchability was bad, and in rearing his losses were nearly 40 per cent. The post-mortem revealed no signs of active disease; pullets reared are small, as are the eggs. He mentions a certain hover which can only be described as a death-trap, and asks whether I think a good dry mash would improve matters. I am afraid I cannot help him. Poor hatchability may have been due to inherent weakness, and this to some extent is confirmed by the small size of the birds; but in how far that was due to bad rearing it is impossible to say. With such a brooder the vitality of the survivors is bound to be affected, dry mash would not help him in the least at this stage. There has probably been malnutrition, due to brooder influence. The soundest advice I can give him is to scrap both the stock and the brooder. There appears to be a combination of inherent weakness, and bad rearing conditions.

D. R. (Penrith) is troubled with colds in a house of the lean-to type, and asks for an explanation of the cause and a remedy. As no further details are sent one can only suggest the possibility of faulty ventilation or draughts—that D.R. must discover for himself; 75 per cent. of colds are contracted on the perch. If that were more generally recognised there would be less complaints and less roup. For treatment I know nothing to beat sulphate of copper; 4 ozs. of the powder dissolved in a quart of drinking water, and one ounce of the solution added to every gallon of drinking water, allowing the birds nothing else to drink. This treatment should be continued till the colds have disappeared. Particular care should be taken to keep the dropping boards clean, and they should be disinfected with Izal. In answer to his further question—should the birds be allowed to run out? If the house is at all "stuffy" they will be better out, although damp ground and exposure to cold winds will not help matters; but fresh air is one of the finest cures and preventives of colds.

Excited (Ashton) has a Black Leghorn pullet which has laid five double-yolked eggs exceeding 3 ozs. in weight in eighteen days. He asks whether this is a record, and what I think of it. As to its being a record I cannot say, as it doesn't interest me. As to what I think of it, I think that possibly his feeding is over-stimulating, and if he doesn't take steps to check this output of double-yolked eggs, the pullet will come to an untimely end. For the present I should remove her from the flock, feed her rather sparingly, giving a very small percentage of animal food and no maize either in the mash or as grain.

G. Bel. (Scotland) was troubled with diarrhoea among his chicks last season, and wants to know how to prevent it. As no details are given I am in the dark; and will correspondents note how often this is the case, how impossible it is to advise, and that I hate guessing, because it so often misleads. Diarrhoea is often caused by the excessive use of starchy foods, such as wheat, biscuit meal and rice. Please note I say "excessive," and am not condemning these foods, although I have a poor opinion of rice as a chick food unless cooked with milk. The best preventive will be to have a hopper of dry bran always before the chicks; but it must be remembered that this trouble is often caused by over-heating and chill, and by digestive trouble due to wet mash fed in a "sloppy" condition.

Anxious (Wendover) had a bad hatching season, with a large number of cripples and chicks with crooked toes. Eggs were very fertile, and most of the embryos died apparently between the 18th and 20th day. He asks if I think the stock was at fault, and if the crooked toes are hereditary. There is no reason to think the stock is at fault, apparently the cause of the trouble was excessive moisture and a badly ventilated incubator. When there is excessive moisture the chicks has a greater struggle to get free from the egg, and this causes the cripples; the trouble would not be hereditary. If the stock had been at fault, the chicks would have died at a regular rate throughout the hatch. It would be advisable to give more ventilation, particularly during the last few days of incubation.

W. H. G. (Diss) wants a hardy and profitable breed of hens for egg production other than the White Wyandotte or Leghorn. He has plenty of land, but it is rather wet and exposed. He asks if I would recommend a first cross—a cross which would enable him to detect the pullets in the chicken stage, or if I think it would be better to keep a pure breed. Personally, I should always prefer a pure breed, and for his purpose I do not think he could beat the Buff Rock. It is a very hardy breed, a good winter layer, and most suitable for an exposed position. If he prefers a first cross, the best for his purpose would be the R.I. Red-White Wyandotte.

W. H. N. (Annesborough) has 22 White Wyandotte pullets, March and April hatched, and 26 year-old hens. During September he got 43 dozen eggs, during October 44 dozen, and during November 45 dozen. He is feeding on a proprietary mixture, which he is giving dry, and in addition a soft feed of bran, pollard and fish meal, which is prepared in the morning with boiling water. He asks if I consider these records good, and if I can suggest a mash as cheap that would give better results. No, I do not think I can, but his soft feed—bran, pollard and fish meal—would be greatly improved by the addition of two parts maize meal. There is not much in bran and pollard itself, and the addition of maize meal would not make the mash any more costly. He is feeding his Khaki-Campbell ducks, which are not yet laying, in the same way as the hens—that is, corn and soft feed. He would be wiser to give less bran and to add maize meal to the mash. The housing appears to be all right.

POST-MORTEMS.

E. G. S. Your provisional diagnosis was quite correct, as the post-mortem showed it to be a case of generalised T.B. The liver was a mass of tubercles, and the spleen was the size of a hen's egg. There was an acute milliary infection both of the messentery and the intestinal peritoneum. I should advise isolation of this bird's incontacts and a thorough clean up and disinfection of the premises occupied by them. The intra-dermal tuberculin test would give you a good idea as to the extent that the disease has spread amongst the rest of the flock, and is quite easy of application and interpretation of the reaction.

H. B. In this case, at any rate, the cause must be considered as accidental, as there was a perforation of the gizzard followed by peritonitis. How this injury to the gizzard wall occurred is only problematical, as the most minute search failed to discover the perforating body. It is possible, however, that the wall of the organ was injured by some sharp piece of grit or glass, which passed on, and the perforation resulted from ulceration.

A. The post-mortem examination of the Barnevelder pullet showed the cause to be septicaemia from absorption of decomposition products from a mortified ovarium. A great number of immature ova had from some obscure cause died on the stalk, blood poisoning following. No, it is not infectious, and you could have done nothing that would have saved her life.

A. L. Amyloid degeneration of the liver was the cause in the five-year-old hen. The liver structure was almost entirely changed, so that not only was the function of that organ interfered with, but the great blood vessels that run through it had become so compressed that the circulation was impeded. The result of this was to produce a condition of general dropsy, the body cavity being full of fluid and the lungs oedematous. There is no treatment even if the condition could be diagnosed during life. The cause is still obscure, but is in some way connected with dietetic troubles. It is not infectious, but I should advise killing these old hens and utilising them for the table.

S. B. The post-mortem examination of the Aylesbury duck showed the cause to be poisoning by one of the metallic poisons, possibly used as a rat bait. The crop, stomach, gizzard and intestines were all highly inflammed, and gave off a strong metallic odour. In order to make sure that the condition was not caused by bacteria of the cholera type (post-mortem lesions only, in some cases, are by no means definite) I made a microscopical examination of the blood, which proved to be negative. I can only suggest that a careful search be made for any poisoned food that may be about the range.

SIXTH MIDLAND LAYING TEST.

LEADING PENS IN EACH SECTION.

First Month (28 days), November 3rd to 30th, inclusive, 1924.

White Leghorns.—A. Pickard, Nuneaton, 67 pts.; Leslie H. Aves, Great Shelford, 57 pts.; C. J. Ashton, Hathern, Loughboro', 56 pts.

White Wyandottes.—Will Baron, Bartle, Lancs., 66 pts.; Lt.-Col. R. Crichton, Netley Abbey, 57 pts.; A. Thomson, Avonbridge, Stirlingshire, 54 pts.

Rhode Island Reds.—J. B. Bent, Geddington, 49 pts.; Mrs. Athol Stuart, Boxmoor, Herts, 48 pts.; K. A. Crawford, Dilham, Norwich, 46 pts.; Leslie H. Hawley, Walsall, 46 pts.

Light Sussex.—F. R. Welch, Bewdley, 47 pts.; C. L. & J. A. Thomson, Holywell, Flint, 37 pts.; W. H. Brady, Penmaenmawr, N. Wales, 36 pts.

A.O.V. Light Breed.—R. A. Fawsett, New Radnor ,42 pts.; Blaksley & Blythe, West Moors, 28 pts.; G. H. Rayner, Grantham, 21 pts. All Black Leghorns.

A.O.V. Heavy Breed.—H. W. Gee, Bromsgrove (Barnevelders), 33 pts.; J. Gordon-Herbert, Newent, Glos. (Barnevelders), 25 pts.; F. R. Welch, Bewdley (Buff Rocks), 24 pts.

Small Poultry-Keepers' Section (Single Bird).—F. A. Ramm, Nuneaton (B.L.), 23 pts.; F. Nicholls, Alvechurch (W.W.), 21 pts.; Mrs. W. H. Sershall, Hockely (B.L.), 14 pts.

The first lunar month has elapsed at the Sixth Midland Laying Trials, at Handsworth, Birmingham, where 504 birds are assembled for twelve months' trap-nest recording, commencing on November 3rd. The first 28 days finished on Sunday, November 30th.

Egg production throughout the whole month has been most satisfactory, an average of 25 per cent. having been obtained, which for the first four weeks, when the whole of the birds are strange to housing, feeding and management generally. It usually takes about six weeks for them to settle down, though much depends on the climatic conditions. However, on the 28th day the splendid total of 226 eggs was reached, approximately 40 per cent. of the whole flock, which may be considered exceptionally good at this time of the year with a mixed flock of birds.

In the Small Breeders' Section there appears to be several birds with every possibility of putting up exceptional records, one bird in particular having laid 23 eggs in the 28 days.

The total number of eggs produced by the whole of the birds in the Test for the 28 days is 3,903 eggs, which consists of 3,739 first grade and 164 second grade. The lowest day's record during the month was 87 eggs, the highest was 226, and the average is approximately 139.3 eggs per day. The average number of eggs produced over the whole flock is nearly eight eggs per bird, or approximately 25 per cent.

The system of feeding includes the dry and wet mash method, and is the same as employed last season, when two White Wyandottes recorded over 300 eggs for the 336 days. The cost of feeding to-day works out at about 2½d. per light breed bird per week, and 3d. per week for birds of the heavy varieties.

On the whole the figures are a fine testimony to the careful and assiduous management that the staff are giving, who are all out again to achieve distinction in the blue riband of the egg-laying race.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

Season's Greetings.

I am desired by the Council to convey
their sincere wishes for
A Happy Christmas and New Year,
to all our Members and Readers
at Home and Abroad.

SEX AGAIN.

I have received the following letter from Mr. A. G. Ludlow :—

> "May I trespass on your valuable space in 'Eggs' to give expression to a thought that would be, I am sure, of general interest to your readers:—Arising out of a conversation with a farmer friend upon the question of the high percentage of cockerels, the result of mating highly-fecund stock. My friend instanced an experiment which was recently carried out on a flock of 100 birds. Firstly, one cockerel was put in. Result: Hatchability and fertility good; progeny, 5 per cent. cockerels. Secondly, two cockerels put in. Result: 25 per cent. cockerels. Lastly, four cockerels put in. Result: 50 per cent. cockerels.
>
> I cannot give chapter and verse nor dates of this experiment, but there is food for thought here. For instance, if fertilisation of the ovary is sufficient to produce fertile eggs for six days, and presuming that a vigorous cockerel will serve eight hens per diem, then in six days 48 hens could be put to one cockerel. If the above experiment is anything to go upon, then the percentage of cockerels resulting, 48 hens instead of 8 or 10 as now practised, would be reduced. Is this not in part a solution of the surplus cockerel question?
>
> You may have evidence to refute the above assertion; if so, forgive me if I have troubled you with a frivolous question."

Mr. Ludlow's letter is very interesting, but I do not think the details given are sufficient to allow much room for comment. One must not, for example, jump to the conclusion that the number of cockerels mated had any definite influence on the sex ratio; it is possible it did so, but we must assume that when the first male was put in the percentage of laying hens was comparatively small. No statistics are available so far as I am aware to prove that a cockerel mated to a small number of hens will breed a higher percentage of cockerels than when mated to a large number. I know that opinion is held by very many people, but one can find several instances which would upset this theory. I will leave Mr. Ludlow's letter now so that others may say their say.

COLOURING IN EGG SHELL.

I mentioned that a breeder of Barnevelders at Olympia told me that his best layers, while starting with a good coloured egg, could not maintain it, and the more eggs they laid the lighter became the tint. This has been my experience with Croad Langshans, and one often finds a pullet beginning with a deep brown egg and finishing with one almost creamy. I have a theory that there is some connection between shell colour and the body fat, as when the latter is drawn heavily on, as it the case with heavy layers, we find the colour of the shell getting lighter. If the pullet is broody, at the end of the period, the shell colour will improve again. A writer in "Poultry Tribune" says, that if yellow corn is fed hens will lay eggs of a creamy colour—he is referring to Minorca eggs. I don't know how far this is correct. It is certain that we cannot feed a Black Leghorn and make it lay creamy coloured eggs.

ULTRA-VIOLET RAYS.

> "Science now makes possible the use of Ultra-violet rays for growing chicks at any time of year, regardless of seasons and weather conditions."

I take the following from the "Poultry Tribune." The title of the article is "A Substitute for Sunshine." It is a record of some experiments recently conducted at the University of Maine under the personal direction of President C. C. Little of that institution, assisted by W. T. Bovie, Ph.D., professor of biophysics at Harvard University. I can only give a summary of the article:—

> Ultra-violet rays are present in sunlight, but when the sunlight passes through glass they are filtered out by the glass. Fused quartz, on the other hand, which resembles glass in appearance and has many of its characteristics, permits these rays to pass.
>
> To determine the effect of the rays on the growth of chicks two groups of chicks were treated, one as a "control" group and the other as the "treated" group. All with the exception of one section of the "control" group were raised under the glass of a greenhouse, which was used for the purpose.
>
> The rays did not reach the chicks, as they were filtered by the glass.
>
> To make good this deficiency in the case of the treated group, they were given a bath of ultra-violet rays for fifteen minutes daily from a Cooper Hewson mercury vapour arc lamp inclosed in a tube of fused quartz and suspended over the pens.
>
> The control group, with the exception noted, was given no treatment and could receive no rays, the exception consisted of a certain number of chicks, which were permitted to run in a yard outside, and received the rays from the sunlight.
>
> This made three groups:—(1) Receiving rays from the lamp; (2) receiving rays from any source; (3) receiving rays from the sunlight.
>
> All chicks receiving rays lived, except a few killed by rats.
>
> Most of those not receiving rays were unable to stand, and died unless a change in their living conditions was made. About 75 per cent. died from "weak legs." This is the same disease which among human beings is called rickets, and these experiments have pointed the way to the application of the rays to the treatment of that malady.
>
> The chicks which were permitted to run in the sunlight grew to about the size of those which were under the lamp, but X-ray photographs showed the bones of the latter had attained a greater maturity. In the case of those not receiving the rays, what should be bone was nearly all cartilage.
>
> Chicks which were given cod liver oil did not develop leg-weakness, but their growth was slow. These chicks were in the control group, and did not receive the rays. They were not nearly as large as those which were given rays or allowed to run outside.
>
> There is reason to believe that experiments now underway will show that sunlight is as important to profitable egg production as to the growth of chicks, and that lack of light will be revealed by a study of the egg shell in laying hens.

CHANGE OF ADDRESS.

Miss E. Mabel Scott asked us to notify members that on and after January 1st her address will be: "Columbia," Moreton, Dorchester.

Miss Scott is removing there from Leweston Manor Poultry Farm, Sherborne, Dorset.

The Internal Mechanism of the Egg-Laying Machine.

By **J. L. ROSEDALE.**

III.—THE WORKING OF THE MECHANISM.

You press the button and the machine works! We must therefore pay a little attention to the buttons, for there are several.

It will not be difficult to realise that there are only two main ways of affecting the inside of the bird: (1) Through the mouth, and (2) through the skin (injections). The latter method is resorted to in the prevention and cure of certain diseases, and it is only the first method with which we need concern ourselves. We will consider the case of a bird which is being fed on grain, and we will follow the food throughout its course and see what happens.

Almost at the beginning of our studies with poultry, Professor Plimmer and I carried out an experiment of "elementary geography" on the bird's inside to find out what it could digest, and in which parts of its digestive tract the different food materials were acted upon.

It appears that knowledge of the exact location of the digestive juices was not altogether known, and one of the very best text books on poultry culture, in speaking of the crop, states that "it contains no ferments." Reference to the table, taken from our paper ("Biochemical Journal," 1922, vol. 16), shows how this statement compares with our results.

The presence or absence of enzymes in the various parts of the alimentary canal is most easily seen from the following table:—

	Crop	Proventriculus	Pancreas	Intestine whole	Duodenum	Ileum	Caeca
Invertase	0	0	.	+		.	0
Diastase	+	0	+	+	.	.	+
Lactase	+	0	.	0	.	.	.
Lipase	.	.	+	.	.	.	.
Proteoclastic in neutral	0	0	+ slight	0	0	0	0
,, acid	+ slight	+	+ less rapid	+	+	+	0
,, alkaline media	0	0	+ rapid	+ slight	+	+ slight	0

This text-book statement is of peculiar interest, because it will not be denied that milk is a very good food. Some years before our joint work on the subject Professor Plimmer had made an investigation on the presence or absence of the enzyme Lactase, which is the particular digestive juice of milk sugar, and found it absent from the intestines of chickens. We had, however, found in one of our feeding experiments that milk sugar was digested somewhere in their insides, so that we were encouraged to look for the exact spot.

When we study the extremely logical proceeding of the digestion of the food, the inside of the chicken becomes almost one of "Nature's Beauty Spots"—it is so very methodical.

A grain contains all sorts of things required for food; some carbohydrate in the form of starch, some protein and some fat, as well as mineral matter and fibre, and, as was mentioned in the first article, a little water.

All these are, so to speak, rolled up in a little case, and before the food is available for the blood to take round to the hungry cells the box has to be unpacked by the different digestive juices.

The first thing to be done is to take the lid off the box. The lid is made of starch, and if we consider for a moment only the nature of starch granules it will be plain that they must be changed before the juices can reach the other constituents. The starch granules with their thick coats are packed close together, but the first juice to be met with in the crop is diastase, which turns the starch into sugar. Our table shows that if milk sugar is present it is also converted in the crop to a more soluble form. Thus, when the lid is opened, progress may be made for a time with unpacking the good things the box contains.

The next step takes place in the proventriculus, whose sole duty is to attack the proteins which it breaks down into blocks—proteoses and peptomes—and might completely turn them into amino acids if the food was not passed on so quickly into the gizzard.

The gizzard is a different kind of "digestive organ." It has no digestive juices of its own, but the food may wait a little while and the juices which accompany it may become better mixed with it. At the same time by mechanical action the rest of the box gets broken a bit so as to make the contents more available to the remaining juices.

The pancreas is the next organ, and it pours into the upper part of the intestine three important juices. It continues the digestion of starch which has not been completed in the crop. It continues the breaking down of the proteins, and as this work is liable to become impeded, owing to the presence of fat, nature has, in its wonderful way, so arranged that an additional enzyme Lipase, which breaks down fats, is secreted also. Literally the fats are converted into glycerine and fatty acids—both soluble materials which can be absorbed into the system and thus got out of the way, leaving a clear field for dealing with the remaining protein and carbohydrates, which, as the table shows, is continued in the rest of the intestine.

Two points may be noticed from these results: (1) That the enzymes we have met with deal only with protein, fat and carbohydrate. (2) The mechanical action of the gizzard.

One of the most striking points, perhaps, is that, although the body enzymes deal mainly with the three organic food constituents, it is known that, in addition to these, the food must contain salts and vitamins. While the salts are soluble and can therefore be taken into the system without special digestive apparatus, nothing is yet know of the constitution of the vitamins, and therefore we cannot form theories about these substances but have to content ourselves with observed facts. You will doubtless agree that an ounce of fact is worth a ton of theory!

(To be Continued.)

BOARD OF AGRICULTURE FOR SCOTLAND.
EGG-LAYING TEST, 1924-25.

Egg production of leading pens at end of first period, 11th November, 1924. Figures are eggs and points respectively:—

Section 1.—White Leghorns.—J. Main, Kinghorn, 141, 124; J. Smith, Rothesay, 131, 114; J. Prentice, Uddingston, 112, 110.

Section 2.—White Wyandottes.—R. Prentice, Overtown, Wishaw, 124, 123; W Bradbury, Tottington, Bury, 105, 102.

Section 3—Rhode Island Reds.—J. A. Terrace, Glasgow, 104, 99; R. Mackenzie, Basingstoke, Hants, 106, 93.

Section 4.—Non-Sitters other than W. Leghorn.—Jackson & Johnstone, Stonehouse, 70, 68; G. B. Metcalfe, Lechdale, Glos., 46, 46.

Section 5.—Sitters other than in 1 and 3.—J. Adams, Cleland, Lanark, 119, 119; O. C. Brown, Scunthorpe, Lincs., 97, 97.

Section 6.—Ducks.—H. S. Godsmark, Sellendge, Ashford, Kent, 82, 46; Major J. G. Dugdale, Cirencester, 50, 38.

CLITHEROE SINGLE BIRD LAYING TEST.

1st MONTH REPORT.

806 Birds competing in Two Sections.

Heavy Breeds.—Capt. N. S. Beatty, Isleworth (R.I.R.), 207 pts.; J. T. Finn, Marple (W.W.), 207 pts.; Miss H. Reed, Wotton-on-Edge (L.S.), 189 pts.

Light Breeds.—K. A. Crawford, Norwich (W.Bresse), 195 pts.; Snowden Bros., Cowling (W.L.), 171 pts.; F. W. Flitcroft, Carlisle (W.L.), 162 pts.

During the first three months a 1st grade egg counts nine points, and a 2nd grade egg six points. During the second three months a 1st grade egg counts five points, and a 2nd grade egg three points.

The Secretary's Medals for type have been awarded as follows:—

Gold Medals.—Wm. Ellery, St. Austell (W.W.); E. Coles, Tottington (W.L.); A. G. N. Erwen, Bollington (R.I.R.); Wm. Barker, Colne (Ancona).

Silver Medals.—R. S. Bell, Allendale (W.W.); F. W. Flitcroft, Scaleby (W.L.); Major G. Mundy, Barnstaple (L.S.); K. A. Crawford, Norwich (W.Bresse).

Bronze Medals.—N. Williamson, Ribchester (W.W.); J. Taylor, Clitheroe (W.L.); R. J. Burgess, Holmfirth (Buff Rock); Jas. Eastham, Garstang (Ex.Leghorn).

LAINDON LAYING TEST—2nd PERIOD.

Section 1 (5 pullets).—Light Breeds.—1, T. Miller (W.L.), 77 (monthly certificate); 2, H. Maycock (B.L.), 76; 3, F. Freeborn (W.L.), 76.

Section 2 (5 pullets).—Heavy Breeds.—1, E. V. Bazin (R.I.R.), 85 (monthly certificate); 2, H. J. Thomson (R.I.R.), 62; 3, W. Belsham (R.I.R.), 40.

Section 3 (single bird).—Light Breeds.—1, W. Belsham (W.L.), 26; 2, East Anglian P.F. (W.L.), 27 (monthly certificate); 3, W. Dillinz (W.L.). 26.

Section 4 (single bird).—Heavy Breeds.—1, C. Sheridan (W.W.), 39 (monthly certificate); 2, Miss Bergman (R.I.R.), 31; 3, F. Freeborn (R.I.R.), 28.

Section 5 (gift).—1, H. Maycock (W.W.), 30; 2, E. V. Bazin (W.L.), 29; 3, W. Dillinz, 28 (monthly certificate).

First-class certificate for highest scoring pullet in test for month, C. Sheridan (W.W.), 27.

K. MARIES (Miss), Manageress.

Centralised Poultry System.

By A. MORTON NANCE.

A poultry fancier prejudiced in favour of the Rectilineal system of management as the only possible system would be expected to have no brief for any other.

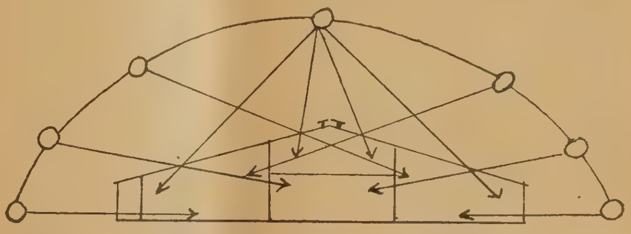
Iron and steel ships did not replace the old wooden craft without an effort on the part of the progressive shipbuilder; nor did the steam engine, at once, put the stage coach out of commission.

One thing is certain, there is something wrong somewhere or larger profits would be made at the present time in poultry, in spite of the undeniable difficulties besetting the trade.

I have had a qualified poultryman working on my farm, who had his training on one of the best known poultry farms in England. He told me that he had to carry heavy buckets and wheel wheelbarrows six times daily over a circuit of half a mile. Fortunately for the principals, it was the pupils that did this work, and it may have been to their advantage to carry as many pupils on the farm as they could procure by constant advertising.

But the Radial system, on the contrary, enables one man to do the work with no effort at all.

One of the objections raised by my system was that a poultry house of my design would be partly in shadow during the day. I think the following sketch should immediately disprove this:—



The disc travelling on the arc of the circle represents the sun, and the lines with arrow-heads the direction of the rays.

I may say there are very few known types of poultry houses admitting so much sunlight, and almost continuously during the day. The afternoon sun is lost in most lean-to and other designs. When the fierce penetrating rays on a hot summer's day often cause discomfort to the birds, it will be seen that the sunlight passes through two lights into some of the sections. The North front will likewise receive its share of warm and light in a not dissimilar way.

Glass lights are arranged in the above sketch in the lower part of the walls of the loft.

The arrangement of alternative runs presents no difficulty. A division into halves of each run, and two pop-holes in place of one, easily provides for this.

Winds striking the front of a poultry house of the lean-to or other type plays with full force against a 7 feet height, and if it catches under the hood may raise it and drag the roof up and off, carrying it a hundred yards or more. The fronts being lower and the angle of the roof pitch reversed, this possibility is likely to be obviated.

The idea of using this type of housing for (a) incubators, (b) brooders and hen-hatching and rearing grounds, etc., has so far not entered into my scheme. It is desirable for every reason to have all these essentials as far removed from the adult and laying stock as possible, and colony raising houses on their own grass-land.

The trap-nests will be of a type settable from the back, as intimated in my previous article, and is part of the system.

There should be no difficulty in cleaning the bowls in the service room if care is exercised and proper utensils—brushes and cloths—used.

The loft need not be a labour-making device. It was suggested for the use of those who bought in large quantities for storage and saving in costs. The labour of letting down a bag of grain or mash materials, or mixed mash if you will, is trivial, and does not involve a lot of double handling. It would be only necessary very occasionally if bins of suitable size for the various formula parts are in use, as in Sketch III. of my article.

If the loft is cleaned occasionally when the poultry sections are cleaned, there should be little occasion for the accumulation of dust, dirt or vermin. A little whitewashing will go a long way in this respect.

The aim should be to methodically supply just enough to keep the hoppers or troughs, whatever the shape or size, filled according to one's requirements with the least trouble.

Infection is not so much a matter of the proximity of pens, as the strict observance of the rules of hygiene, being omitted. Clean pens, clean water, clean litter, and the judicious use of Izal and permanganate of potash, as a precautionary measure, attention to the laws of ventilation, minus draughts, and air pockets (in my system the latter are conspicuous by their absence, as all the used up air passes out through the roof apex), should keep disease away. The divisions between sections may be boarded up half or three-quarters way, and wire netted at top, and those of the runs may be fitted at the bottom with rough wood or corrugated iron sheets.

The surest way to carry infection is by the boots and clothing, more particularly the boots, as they are constantly treading the litter, under the old system, and thus it may be carried almost any distance.

Affected birds housed under this system should be spotted instantly from the service room and removed, if necessary, to a special pen for treatment, isolated from the rest of the flock, though for my part I only treat colds and minor ailments; roup or any other contagious disease is caught in the first stage and the cases destroyed by burning. In my experience, that is the only satisfactory way to fight it.

And last, as to cost. This should be reduced to a minimum, as :—

(1) Less timber is used. The trap-nests taking the place of backs to each section.

(2) Only 5 ft. height at front means less T. & G. ¾ in. or chambred and rebated weatherboard.

(3) Belgian glass, which is quite cheap, can be used quite well.

(4) Service hall, if a separate construction, would require four walls to exist at all.

(5) The wages bill is struck off the running expenses account.

If other objections or questions should arise respecting my system, I shall be very pleased to give further replies.

WYE COLLEGE DUCK LAYING TEST, 1924-1925.

Held in conjunction with the N.U.P.S. & U.D.C. at the South-Eastern Agricultural College, Wye, Kent.

This Test, which commenced on November 1st last, extends over a period of 48 weeks. Each entry consists of five ducks, of which there are 155 in all. All the ducks are trap-nested and are run as one large flock on free range over grass land.

For the purpose of awards the birds are divided into four brood classes, viz.: (1) Khaki-Campbells; (2) Indian Runners; (3) Buff Orpingtons; (4) Magpies. Separate awards will be made in each class.

The eggs are graded according to weight, a first grade egg being one which weighs 2 ozs. or over. Second grade eggs are those which weigh under 2 ozs.; those do not count for awards.

REPORT FOR FIRST PERIOD (Nov. 1st to Nov. 28th, 1924).

The ducks arrived on October 16th and 17th, and were allowed a settling down period until November 1st, when recording commenced. On the whole, this year, the ducks do not appear to be so forward as in previous years, and are not so mature. With the exception of a few pens the birds are very much tamer than last year, and more birds have doubtless been trained to the trap-nest before being sent to the Test.

The average number of eggs laid per bird during the month is 5.64, which is slightly better than during the same period last year. About a third (49) of the ducks have commenced laying, and have put up a much better average per bird than those which laid during the corresponding period last year. Last year's average per duck (laying) was 10.33 eggs per bird, as compared with 17.85 this year. The total number of eggs laid during the month has been 875, giving an average per bird of 5.64 eggs for all the birds.

The leading position in the whole of the Test is held by Messrs. R. A. & A. M. Johnson's Pen No. 14 (White Indian Runners), which have laid 85 first grade eggs, an average of 17 eggs per duck.

Khaki-Campbells.—Harrison Bell, Miss, 69 pts.; Chivers & Sons, 64 pts.; Dugdale, J. G., Major, 44 pts.; Gibson, M. A., Mrs. 37 pts.; Kingscote, E. T. Major, 28 pts.; Lewer, E. H., Miss, 13 pts.; Thompson, P. C., Capt., 13 pts.

Runners.—Johnson, R. A. & A. M. (W.), 85 pts.; Johnson, R. A. & A. M. (W.), 79 pts.; The Molassin Co. (F. & W.), 75 pts; Appleyard, R. (W.), 75 pts.; Partridge, W. R. (W.), 71 pts.; Partridge, W. R. (W.), 70 pts.

Buff Orpingtons.—Chittenden, C. C., 24 pts.; Lucan Poultry Farm, 23 pts.

Magpies.—Good, O. N., 54 pts.

F. W. RHODES, Poultry Manager.

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for Second Period ending 9th December, 1924.

Section A.—Mr. A. F. C. Holdaway (Pen 1) (W.L.), 1246 pts.; Mr. A. F. C. Holdaway (Pen 2) (W.L.), 1171 pts.; Mr. R. McKenzie (W.L.), 1078 pts.; Mr. J. H. Thompson (Anc.), 883 pts.; Capt. D. W. Gunston (Pen 2) (W.L.), 818 pts.; Mr. F. S. Wilkinson (W.L.), 796 pts.; Mr. C. J. Alexander (W.L.), 688 pts.; Capt. A. Munro Spencer (Pen 1) (W.L.), 687 pts.; Capt. A. Munro Spencer (Pen 2) (B.L.), 638 pts.; Mr. H. R. Hunter (W.L.), 614 pts.

Section B.—Mr. R. McKenzie (W.W.), 1234 pts.; Mr. F. S. Wilkinson (W.W.), 1127 pts.; Capt. D. W. Gunston (Pen 2) (W.W.), 1009 pts.; Mrs. J. H. Drew (Util. Bf. Rk.), 999 pts.; Capt. D. W. Gunston (Pen 1) (W.W.), 989 pts.; Mr. J. H. Thompson (W.W.), 706 pts.; Brig. Gen. S. Lushington (Austral.), 433 pts.; Mr. G. R. Martin-Cooper (W.W.), 406 pts.; Mr. C. Prior (Buff Orp.), 354 pts.; Major L. C. Chawner (W.W.), 348 pts.

Making Bee Candy.

By **E. W. D. MADOC, B.A.**

The bees should have been packed away during September, with plenty of stores to last them through the Winter and Spring, but there are always a number of stocks that go into winter light in stores owing to carelessness or neglect on the part of their owners. Owing to the poor honey gathering season experienced this year there will be an unusually large number of stocks in this condition, and considerable feeding will be necessary to carry the stocks through the winter. At this time of year a good type of candy, especially made for the purpose, is the best food to use. This can be obtained from any of the bee appliance manufacturers, but it is very much cheaper and equally satisfactory to buy the sugar, and make the candy at home if reasonable care is taken in following the directions for making.

The following recipe will give a candy equal to any made by the professional sugar-boiler if the directions are carefully carried out:—

Place two pints of water in a preserving pan, and bring to the boil; then remove it from the source of heat, and add six pounds of white granulated sugar and a pinch (one dram or 1/16 oz.) of cream of tartar; mix the sugar and water together, and replace on the fire, stirring fairly continuously until all the sugar is dissolved. This generally occurs when the mixture begins to boil, but it should be tested for by not stirring for a minute or two, when any undissolved sugar may be felt as a deposit on the bottom of the pan. When no deposit is left on the bottom of the pan after not stirring for a minute or two, the stirring should be discontinued altogether, the boiling being continued until a drop or two of the syrup, placed on a saucer and left for a minute or two to cool, becomes firm to the touch without being sticky. When this point is reached, the pan should be removed from the fire, and allowed to cool until the mixture begins to get thick, when stirring should begin again, and continue for a few minutes. It should be turned out into moulds to harden before it becomes too stiff to work easily.

If a fairly large quantity of candy is to be made, it is worth getting a special candy-making thermometer. The candy is made in exactly the same way as described above, except that instead of testing the candy by placing a drop or two on a saucer, which is a rather rough and ready, and not very accurate way, the candy is boiled until the temperature reaches the higher of the only two marks on the thermometer, when it is removed from the fire, and stirring is commenced when the temperature falls so that the mercury column registers opposite the lower mark on the thermometer.

When buying cream of tartar, be sure to get cream of tartar, and not tartaric acid. If the latter is used the candy does not turn white, but forms a very sticky toffee-like substance, quite unlike candy. This warning is necessary in view of the fact that many people seem to be under the impression that tartaric acid and cream of tartar are the same thing.

Many years ago when beet sugar was a comparatively new product it was imperative to use cane sugar for candy making, because the beet sugar contained many impurities harmful to bees. Nowadays, however, the beet sugar is refined by improved methods, and is quite suitable for candy making, although nearly all the books still emphasise the importance of using cane sugar only.

The vessel used for boiling the candy should be smooth inside and not too thin, the syrup should not be boiled too fiercely, and stirring should be done with a wooden spoon, or a piece of wood. The quantity of candy made at one boiling may, of course, be varied by using more or less of the ingredients in the proportion given.

THE MIDDLESEX LAYING TEST.

Held at Hearne House Poultry Farm, Hayes, Middlesex.

In presenting the Final Report of the 1923-4 Middlesex County Laying Test, we would like to preface it with the reason we decided to discontinue same, viz., that the support of the Home County did not warrant it, being only 6 per cent. of the total. We take this opportunity of thanking those who have supported us, and who have expressed their regrets at there being no test this year.

The total entries were 430. Some birds had to be returned for various reasons, the deaths from numerous causes equal 9.89 per cent., the total eggs laid being 51,291, giving an average of 142.

LEADING SIX IN EACH SECTION.

Light Breeds (Single Birds).—J. & A. Moore (B.L.), 220 pts.; Major Kingscote (An.), 202 pts.; J. A. Howarth (W.L.), 196 pts.; Roebuck & Illingworth (B.L.), 147 pts.; F. J. Betts (W.L,), 178 pts.; D. W. Gunston (WL.), 155 pts.

Heavy Breeds (Single Birds).—Mrs. J. H. Drew (Bf.Rk), 217 pts.; Mrs. M. Rogers (R.I.R.), 210 pts.; H. J. Veeger (L.S.), 205 pts; A. Prince (W.W), 203 pts.; W. Measures (R.I.R.), 193 pts.; E. Bland (R.I.R.), 192 pts.

Light Breeds (Pairs).—W. H. Hawkes (W.L.), 317 pts.; Mrs. Crookes (W.L.), 285 pts.; Davey & Son (B.L.), 279 pts.; V. J. Hitchings (W.L.), 277 pts.; E. & W. A. Franey (W.L.), 276 pts.; L. C. Turnill (Minorcas), 270 pts.

Heavy Breeds (Pairs).—A. D. Prince (R.I.R.), 399 pts.; P. E. White (Bf.Rk.), 390 pts.; Major G. T. Williams (R.I.R.), 362 pts.; W. Claughton Douglas (W.W.), 361 pts.; E. Bland (W.W.), 348 pts.; W. Measures (R.I.R.), 340 pts.

H. Winch leads in Cross Section with 170 eggs.

Capt. J. W. SMITH, Organiser and Secretary.

BRIGHTON STOCK TEST, 1923-24.

In this Test each entry consisted of four dozen eggs. These were mixed and incubated, being sorted into pedigree trays on the eighteenth day, and the chicks resulting were rung for identification. The chicks were brooded in large flocks, heavies and lights separate, under anthracite stoves. The pullets were likewise housed in large flocks of heavies and of light breeds, and were trap-nested until the end of September, 1924.

One mark was given for each egg hatched, and two additional marks for each bird reared to eight weeks of age. To the score of each entry thus obtained was added the average number of first grade eggs laid by the pullets surviving to the end of the test. Second grade eggs were not counted in the final score:—

Heavy Breeds.—Mummery (Silver cup) (W.W.), 257 pts.; McLeod (Gold medal) (R.I.R.), 248 pts.; Crabtree (Silver medal) (W.W.), 242 pts.; Sanders (R.I.R.), 239 pts.; Buxton (Countess) (W.W.), 239 pts.; Woodford (R.I.R.), 234 pts.

The number of pullets from four dozen eggs is small because an outbreak of B.W.D. swept through the young stock, and a fox killed over seventy adult birds.

Light Breeds (White Leghorns).—Coles (Silver cup), 287 pts.; Ransford (Silver cup), 287 pts.; Street-Porter (Silver medal), 277 pts.; Brown, 267 pts.; Bradbury, 263 pts.; Gunston, 259 pts.

For full names and addresses of competitors please see current Year Books.

H. M. TIMPANY, Hon. Secretary.

Winter Egg Production.

The fifth of the series of poultry lectures under the auspices of the Manchester Agricultural Committee was held at the Blackley Institute on Wednesday evening, December 3rd, 1924, Councillor F. J. Robertshaw presiding.

In his opening remarks, the chairman referred to the great sum of money spent outside our borders on poultry products, and how the cottager and small-holder could assist with increased production to keep the money at home.

Mr. Jack Wrennell, the lecturer, needed no introduction, for the Bartle Poultry Farm, Preston, is known the length and breadth of the British Isles, with which our friend is connected.

For winter egg production good housing, the best of foods, and management will not produce the goods unless the "right stock" is there for the business. From 1907-8, when the laying competitions commenced, the industry has gone ahead in leaps and bounds, and for this reason, to obtain the coveted honour, it is necessary to have the "right stock." The trap-nest which is the true judge gives the records of the birds, thereby the breeders being able to mate up with the stock in such manner that to-day the bred-to-lay fowl is accomplished.

It must not be overlooked that records alone do not produce winter eggs, but that the stock must be hatched at the right time. A dozen years or more ago it was thought a fallacy to hatch in February, believing that all would be lost owing to climatic conditions principally. Such breeds as Reds and Light Sussex hatch February; Wyandottes very early March, and Light breeds early April. The very early hatched pullets no doubt will moult, or partially so, about August/September, but be ready again for winter production.

Housing plays a very important part, particularly during those all-important winter months. Well-made, sound, light, and plenty of it, to enable sunlight to keep out disease. Position south, especially if a lean-to house, and where wire netting, arranged so that the wet does not beat in, for birds with cold or wet feet do not lay eggs. The floor space must be kept clear, plenty of litter provided, being exercise for the birds, seeing that the scratch food is placed therein. An egg being composed of about 60 per cent. water, it will be observed how necessary it is to see that the birds are never without, and more so that it is never tainted or exposed to the full rays of the sun. When birds are seen crowding round the water vessel it is a sure guide that the poultryman has omitted this most important element, probably having taken the vessels away at night and the birds being left too long without.

Attention to detail makes for success, therefore be observant particularly in feeding. It is necessary to feed by the clock, and by such regularity efforts will be rewarded. Wet, dry, or wet and dry food, or whatever way one feeds, keen observation is necessary, it not being the object to feed but to notice that the birds are ready for the food. If they are not keen, feed but very very sparingly, but keep to the clock. A combination of wet and dry feeding is good, no drastic changes, but ring the changes in the feeding. The winter egg layer, which has done so in a natural way, can safely be used for the breeding pen.

During the winter months, when fowls have sixteen hours perching to eight of daylight, it requires very good management to obtain the winter egg. The short days mean long nights and birds' crops empty.

It must not be overlooked that a fowl can live on its own reserves, but this means an empty egg basket, so that to avoid such a long fast and to save the birds drawing upon their own reserves artificial lighting helped to solve the question. Probably nine o'clock will be found a good time to introduce the lamp or electric light into the poultry house. The birds soon become used to it, and know that it is feeding time, coming down from the perches and after all fed, lowering the light, they return to roost when the lamp is taken away. It does not follow that more eggs per year per bird will be laid, but that more eggs at the season when they are most scarce will be the result.

The backyarder, small-holder, along with the larger poultry farmer, can help to check that vast amount of money which is annually spent for that which can be produced at home, and better value through more wholesome food. A genuine new-laid English egg has pride of place, and with organisation and proper marketing the great fluctuations between the spring and winter seasons will be somewhat avoided, and a greater general demand throughout the whole year. Is it necessary that wheat-producing countries should also have to send us eggs? The poultryman ought to be able to answer, Send your wheat; we will turn it into eggs. Our surplus eggs from the glut season, and also by greater production through more bred-to-lay fowls, can be cold stored and turn out equal to any foreign competition.

A vote of thanks to the lecturer brought a profitable evening to a close.

W. G.

"Mametz," Brundall, Norfolk.

Dear Sir,—Although only a member of about six months' standing, I must congratulate you on the soundness of the principles and the excellent spirit of the movement. I have kept poultry all my life, but must say that, thanks to the books sent me when I joined, and by following your excellent publication, "Eggs," I have learnt more since joining than the whole previous period, and my results this year following your methods of feeding, housing, etc., are most gratifying.

Yours faithfully,

(Signed) KEITH PARKER.

POST-MORTEMS—Continued.

A. The liver and kidneys of this bird were a brick red, such as one would associate with a particular kind of poisons, and not infectious disease. As a precaution, I would advise feeding from some totally different source, while keeping observation on the health of the flock. You are certainly right to disinfecting as another precautionary measure. Will you please note that Major Saunders is now doing the post-mortem examinations, and that his address is Tarring Road, W. Worthing. There is a notice to that effect in "Eggs," which has evidently escaped your observation.

G. The post-mortem examination of the White Wyandotte pullet showed the cause to be catarrhal roup. The attack so far appears to be of rather a mild nature, but no precautions should be relaxed, as it may increase in virulence at any time. Continue to keep the affected ones strictly isolated, and treat the entire flock with medicated drinking water, both as a preventive and curative measure. Dissolve one dram of copper sulphate in a little hot water, making sure that solution is complete, and add to each gallon of drinking water, allowing none other. In addition, the birds already showing symptoms should have their heads dipped in a similar solution, holding them so that the mouths are open, and keeping the heads well under for twenty seconds. This should be done once daily, and the combined treatment persisted in until all signs of "colds" are gone.

B. As is often the case of male birds, the heart was of great size, and proved too powerful for the resisting powers of the walls of the blood vessels. The result was that owing to some exciting cause (fright, excitement, acute indigestion, etc.), the blood pressure was suddenly raised, and proved too great for the blood vessels in the lungs to withstand it. The vessels gave way under the strain, and apoplexy of the lungs was the result, terminating fatally, from suffocation and hemorrhage, very rapidly.

R. The post-mortem examination of the White Wyandotte pullet showed the cause to be tuberculosis of the liver with the usual sequelae of extensive disease of that organ. Tuberculosis being an infectious disease, this bird's incontacts should be isolated from the rest of the flock, and any showing similar symptoms, destroyed and burnt, as, of course, treatment is neither desirable or effectual. The houses and runs should be cleaned up, and then very thoroughly disinfected, and particular attention paid to the cleaning and disinfecting of the food and water utensils.

Eastwood Manor, East Harptree, near Bristol.

Dear Sir,—I enclose cheque for 12s. 8d. for another year of "Eggs." If you made it £5 a year it would be cheap.

Congratulations on the only paper for ordinary mortals who are generally struggling to understand high-flown stuff from Expert Cranks.

Yours gratefully,
(Signed) C. J. LAMBERT.

Correspondence.

ORGANISATION.

To the Editor of "Eggs."

Dear Sir,—Through various suggestions at the annual general meeting, and correspondence week by week, I am forced to the conclusion that the S.P.B.A. is a most wonderful organisation for a body of poultry farmers. At the same time my own personal experience has proved to me that the lack of co-operation amongst the members is simply appalling, with the exception of perhaps one or two districts. As a looker-on from a market point of view, and from the point of view of one who has done business with so many of the members individually, I feel justified in passing my opinion. From another point of view I am perhaps more entitled than others to judge, when I say, that from my market business I am dealing direct with a similar organisation in FRANCE, and in the hope that it is going to be of service I will set out a few facts regarding this organisation.

To the uninitiated I would like to point out that in France anybody who has land has poultry, but strangely enough (and in strong contrast to the gospel I have preached regarding the marketing of table poultry) none of these rearers send their poultry to the markets. They all take their produce to the small local market and sell it themselves to the poultry dealers, who in turn send it to the big French markets, or export it.

As most people are aware, there are enormous numbers of these small farmers in France, and they are not in a big enough way to send their produce to the big French markets, and that is the reason that they sell to these dealers, so that the dealer in France is really in about the same position, as regards marketing, as a member of the S.P.B.A. Anyone conversant with village life in France will appreciate that, as regards marketing, this is the only practical method.

It is the co-operation and actions of this Federation of "SENDERS and EXPORTERS" that I want to hold up as a pattern to the S.P.B.A.

This body of men have grouped themselves together in various districts, but with a grand committee at the head. Each district has its local president, who is the envoy to the grand committee. This president of each district broadcasts general information to the members in his district, and in the same manner sends the combined decision of his district to the grand committee. Does it not appear obvious that this is the organisation the S.P.B.A. should create!

By this means complete unity of control and action is acquired. The same remarks apply to France as to Great Britain, where the conditions in one part are vastly different from the other, but by means of the local president, to whom the individual members give full power as an envoy, they are able to consolidate and make known their wishes or intentions. Thus a whole district has its peculiar difficulties settled at once. If we of the S.P.B.A. had a federation like this there would be no question of capital required to float a possible or impossible Limited Liability Company, there would be no hundreds of letters from individual members all over the country, complaining of their little worries and troubles. There would be one loud voice to talk to Parliament, and who would talk to Parliament with authority, and not go cap in hand begging for shillings. There would be no question as to who was going to rule the Egg Market, and a federation like this could come down like a ton of bricks upon any unscrupulous tradesman, just in the same manner as it would come down upon any of its own members who played monkey tricks. This big federation would speak with a loud voice to the people who deal in corn and other poultry foods. Their boycott would be the death knell of some of these unscrupulous merchants. There are many other things it can do, all to the benefit of the individual. I will not go into details in this letter, but I know that at present the Federation I speak of is waging a war on behalf of the individual members which it would be impossible to do in this country or in our society, simply because we have no co-operation.

I would mention that they only have a monthly journal, whereas we already possess a weekly journal.

The outcome of the whole of this arrangement would be a straight deal for everybody, and if that is achieved, who has got anything to grumble about?

What others have done, we can improve upon. I have tried to give the lead, and am only too willing to further any effort should it be made.

Yours faithfully,
A. V. CLARKSON.

Acacia Farm, Romford, Essex.

APEX HOUSES.

To the Editor of "Eggs."

Sir,—It is always refreshing to read the very pronounced views of Mr. Toovey, however much one may agree or disagree with him, and it is all the more interesting reading, as he tells us that he has tried the Apex house and scrapped it.

In the matter of lighting, I should like to ask him why this is not easily possible by the judicious use of watertight fanlights, but high up and also near the ground?

With regard to the question of ventilation while the birds are on the perches, Mr. Martin Harvey made a most excellent suggestion to me last year. Why not, he said, put the perches crossways down the centre of the house instead of lengthwise at the back of the house.

I tried the idea in a house 42 feet by 15 feet. The perches are five feet long on a stand with dropping boards. The whole floor space is free, and this (lean-to) house has five feet in front and five at the back, without anything above it but the roof. Why should not a similar plan be equally efficacious in an Apex house?

You could have either pits or dropping boards, quite possibly the former for preference. The ventilation from the two ends could be so arranged to eliminate draughts.

Although Mr. Toovey tells us that he has not the patience to deal with objections, perhaps he will so far relent as to tell me whether I am wrong.

At the end of his letter he drags in the question of the Intensive System, which I gather from your columns is like a red rag to a bull to your distinguished correspondent.

Has he ever really tried the intensive system? I ask the question in all possible humble sincerity. By my question I mean, has he had birds from date of hatch onwards kept intensively, or has he merely taken birds from the run and intensed them?

I ask the question because my friend, Mr. Willett, who is unfortunately a very retiring man, tells me that he has always been most successful at Kempshott with this system. Perhaps Mr. Toovey did not make his birds work, because Mr. Willett tells me that is the whole secret.

In conclusion, I am rather inclined to the view that possibly the Apex house, allowing 4 square feet per bird, may be a quite feasible method of reducing our building costs.

Your obedient servant,
FRANCIS J. HEMELRYK.

Old Mill House,
Partridge Green, Sussex.

ARTIFICIAL BROODING.

To the Editor of "Eggs."

Dear Mr. Newman,—In regard to some investigation work on artificial brooding, may I ask the assistance of any of your readers on the following points :—

(1) Has it ever been definitely proved that a brooding hen radiates heat on to the bodies of her chicks? If so, on what experiments, if any, was the conclusion based?

(2) Has it ever been proved that radiated **top heat** is essential to the successful rearing of chicks?

(3) (To your medical expert.) Is it possible that a dry heat radiated on to the spines of chicks is harmful?

In answer to the two queries in your issue of 3rd December, re "Ventilation."

Your correspondent's complimentary remarks are appreciated.

Major Hesketh :—With regard to rain catching on the "Apex" house. It has never occurred to me to regard this as an asset, but if it is, then there is, roughly, double the surface area available as compared with either a lean-to or span roof house. If he will refer to my diagram and text it will be seen that the principals of the house are extended below floor level to provide a rain shelter and dust bath area, and which might be successfully utilised as a scratching shed in intensive work. On these principals, or legs, it is a simple matter to fix a gutter.

With regard to floor space. I allowed two square feet per bird, but as there are only single perches on each side (although double perches could be used at a pinch) I found that the perch room limited the number of birds to be accommodated, and in the house I built this worked out to 2½ square feet per bird.

The wire-netting floor he suggests would, of course, be ideal, and I use it entirely in the case of small houses for chicks up to ten weeks old, but in an adult house would not the adoption be precluded by reason of the fact that grain could not be scattered in the litter? If gauze of mesh small enough to prevent grain falling through were used it would soon be blocked up by the mixture of litter and dried droppings, and if large enough to prevent that the grain would be lost.

"Scottie":—This letter was evidently written before seeing mine in your issue of 26th, explaining how floor draught is an impossibility. The box ventilator he describes, by which air is let down to the floor, is one of the many devices used for baffling the air inlets in ventilation by induction; but if I am not labouring the point, may I again draw attention to the fact that floor-level air supply will be very difficult of accomplishment in any such house as he describes **if the windows three feet above floor level are ever opened,** since short circuiting is bound to occur.

Yours faithfully,
C. WINTHROPE SOMERVILLE.

The Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Amsden, J., Pedigree Farm, Sevenoaks, Weald, Kent.
Higley, A. L., "The Rose and Crown," Waterside, Chesham, Bucks.
Blagrove, A. F., "Rosebank," Hanwell, W.7.
Cromer, Roy N., "Hillside," Hereford.
Lyzack, E. A., Fir Tree Cottage, Tilford, Farnham, Surrey.
Browne, E. M., Down's Villa, Down's Grove, Vange, Pitsea, Essex.
Brown, Herbert C., York Road, Hockley, Essex.
Hoare, Geo., Somerset Cottage, Dudley Hill, Bradford, Yorks.
Wood, E. T., Bearsden, Sidley, Sussex.
Schmitz, Miss M. C., Teagnes, Scaynes Hill, Sussex.
Guthrie, Miss C. M., 14, Vicarage Drive, Eastbourne, Sussex.
Ryan, Miss W., Sanctuary, Stratton, Cornwall.
Shutt, Wm., 1, Clarence Street, Colne, Lancs.
Deeley, C. R. P., Moushall Farm, Amblecote Road, near Brierly Hill, Staffs.
Campbell, Andrew, 5, High Street, Newmilns, Ayrshire.
Lomas, Wm., 15, Ryecroft Street, Ashton-under-Lyne.
Makin, J. A., Booth Hall, Boothstown, near Manchester.
Thornton, Ed., Lynburn House.
Blochin, Victor, Dunstaffnage Castle, Connel, Argyle.
Craik, Miss O. L., Priestgill (West), Strathaven, Lanarkshire.
Woffenden, Mrs. D. E., "Glendalough," Longmore Lane. Shirley, Birmingham.
Mitchell, Wm. R., Northbank P. Farm, Portencross, W. Kilbride, Ayrshire.
Bilton, G. E., Olinda, Ashley Heath, Ringwood, Hants.
Ridout, W. J., 195, High Street, Poole, Dorset.
Beck, A., Old Letton Court, Hereford.
Wrightson, F. W., 1, Preston Terrace, Preston, N. Shields.
Travis, E. W., Heatherwood, Pirbright, Surrey.
Schofield, John, Brookside, Downham, near Clitheroe, Essex
Hall, F. G., Highfield, Littleton, Winchester.
Garner, A., 103, Berners Street, Leicester.
Emuss, Mrs. F. W., Bridge Farm, Cranleigh.
Bell, Com. C. C., D.S.O., R.N., "Oaklands," Hailsham, Sussex.
Cowper, Errol, South Woodham, Essex.
Strother, Mrs. S. del, Mount Leven Farm, Yorks.
Houghton, J. E., Broad Green, Tardebigge, Bromsgrove, Worcs.
Harris, E. L., High Street, Metheringham, Lincoln.
Williams, Jas., Windsor, Kelly Bray, Callington, Cornwall.
Hyde, E. W., "Fir Grove," Lydiate, near Liverpool.
Crowther, H., 4, Willow View, Sowerby Bridge.
Tresadern, John, "High Elms," Thornwood, N. Weald, Essex.
Hallam, Wm., Rayland's Farm, Matley, Hyde, Cheshire.
Hughes, Miss M., The Poultry Farm, Boars Hill, Oxford.
Colson, Miss E. D., The Haven, Pinehurst Road, West Moors, Wimborne, Dorset.
Roberts, Harry, Riversdale, Union Mills, I.O.M.
Longley, J. E., Marrylands, Heathfield.
Williams, R. M., The Rock Poultry Farm, Bordon, Hants.
Pearson, T. E., Lanesmeet, Epperstone, Notts.
Pylewell Poultry Farm, Lymington, Hants.
Currie, A. V., Two Ball Lane, Fenham, Newcastle-on-Tyne.
Walker, Mrs. D. J., Priestland, Co. Antrim, Ireland.
Summerfield, G., c-o K. Simmonds, Esq., Hembury Fort, Honiton.
Hallett, Geo., 93, Newport Street, Leicester.
Lilburn, A. E., Colne, St. Ives ,Hunts.
Barcroft, R., Garnett House, Winster, Windermere.
Banham, W., Rawcliffe P. Farm, Rawcliffe, Yorks.
Taylor, Harry, "Gwyndy," Netherton, near Huddersfield.
Livingstone, John, "Redcliffe," Viewfield Road, Bishopbriggs, Glasgow.
Briggs, John, 103, Cleator Street, Dalton-in-Furness, Lancs.
Roberts, Cecil, Hendra, near Newquay, Cornwall.
Stamp, John S., Coulceby, Louth, Lincs.
Rowell, Ed. M., Bury, Huntingdon.
Nesbitt, Wm. H., "Poultry Station," Ballycannon, Annsborough, Co. Down.
Barclay, Mrs. E. C., "The Glen," Upper Curdridge, Botley, Hants.
Shepperd, J., The Arthuret P. Farm, Burford Rd., Witney, Oxon.
Bishop, Capt., H. G., Southend Road, Wickford, Essex.
Nettleton, Miss M., Blakelaw, Kenton, Newcastle-on-Tyne.
Campbell, F., The Nook, Westwood Road, Outwood Road, Handforth, Cheshire.
Davies, Jones, 22, Wycliffe Street, Rockferry, Birkenhead.
Sobey, A., Goonhavern, Callestick S.O., Cornwall.
Nesbitt, Maj. E. A., Longacres, Phyllis Avenue North, Peacehaven, Sussex.
Lambden, A. C., Bungalows, Ash Warren, Basingstoke.
Mattock, F. G. S., Eastgate, Broad Walk, Winchmore Hill, N.21.
Oliver, H. L., "Meadow Bank" P. Farm, Elham, N. Canterbury.
Buckle, A. Steward, Stanemore, Pirbright, Woking, Surrey.
Cave, R. J,. Pinehurst Farm, Bolney, Sussex.
Brock, F. W., Fairmead, Bicknacre, Chelmsford.
Jackson, Luke, 7, Hedgefield Cottage, Blaydon-on-Tyne, Co. Durham.
Craik, F. Murray, Priestgill (West), Strathaven, Lanarkshire.
Bowman, Raymond, Butts Ash P. Farm, Hythe, nr. Southampton.

IRISH POULTRY-KEEPERS' ASSOCIATION.

The magnificent progress of this Association was commented upon by its President, Col. G. Poer O'Shee, at a Council meeting held recently at the Association Office, Corn Exchange Buildings, Dublin. Over 500 new members have joined during the past three months. The recent additions to the Council have given excellent accounts of themselves in their plans for organising the poultry-keepers of Ireland.

The scheme for supplying more suitable feeding stuffs at lower costs is working well, and by degrees distributing centres will be established throughout the country.

Sale of new laid eggs scheme has also been most successful, an average of 32s. per hundred having been maintained since early November, which, when compared with prices ruling in country markets, 25s., 27s., over a similar period, is most satisfactory.

The proposal to hold an annual laying test conducted on the most up-to-date lines is receiving consideration.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

Eight Annual Six Months' Laying Competition, held at Woodland Grange, Penwortham, under the management of Mr. J. Rainford, who reports all birds in good health. The following birds are moulting; W.W. 24, R.I.R. 71, W.L. 20; Broody, W.W. 35, R.I.R. 74, 75.

Second Months' Report, November 6th to December 3rd, 1924.

Section 1.—White Wyandottes.—J. R. Rawson, 1436 pts.; J. T. Finn, 1426 pts.; J. Hodgson, 1310 pts.; H. Pinder, 1294 pts.; G. H. L. Armstrong, 1240 pts.; J. Crompton, 1190 pts.

Section 2.—A.O,V. Heavy.—C. C. Humber, 1550 pts.; A. G: V. Ermen, 1312 pts.; J. J. Rawlinson, 1212 pts.; R. Moon & Son, 1182 pts.; N. Swarbrick, 710 pts.; Mrs. M. Walker, 548 pts. All Rhode Island Reds.

Section 3.—White Leghorns.—R. Moon & Son, 990 pts.; A. G. V. Ermen, 928 pts.; J. C. Barnes, 786 pts.; H. Holden & Sons, 606 pts.; E. Collier, 354 pts.; J. Fletcher, 284 pts.

E. COLLIER, Hon. Secretary.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING FRIDAY, 19th DECEMBER, 1924.

GRAIN AND FEEDING STUFFS.—A better enquiry prevails for English wheat and some advance in prices is reported. All descriptions of imported wheat are also dearer, the steadier tone referred to last week being maintained. British barley is practically unchanged in price, except at London, where prices are easier. English oats meet a firmer market. A considerable advance for maize is reported at all four centres.

The market for milling offals is steady, and small advances in prices are reported at Bristol and London. Some recovery is apparent in the trade for oil cakes at Liverpool, while at London all quotations have advanced, but elsewhere prices are generally unchanged or even reduced on the week.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s; Hull, £8 2s; Liverpool, £8 5s; London, £8 7s. Broad Bran: Hull, £9 12s; London, £9 10s. Middlings—Fine (Imported): London, £10 7s; Coarse (British): Bristol, £10 2s; Hull, £10; Liverpool, £9 5s; London, £9 7s. Pollards (Imported): Bristol, £8 15s; Hull, £8; Liverpool, £8 7s; London, £8 5s. Rice Bran: Bristol, £9 7s; Liverpool, £8 15s. MEAL.—Barley Meal: Bristol, £12 17s; Hull, £12 15s; London, £13. Maize Meal: Bristol, £12 2s; Hull, £11 11s; Liverpool, £11 5s; London, £11 7s. Maize Meal (S. African): Hull, £10 10s; Liverpool, £10 17s. Maize Germ Meal: Bristol, £12 7s; Hull, £11 5s; London, £10 15s. Maize Gluten Feed: Bristol, £12 5s; London, £11. Locust Bean Meal: Bristol, £9 7s; Hull, £9 10s; Liverpool, £9 10s; London, £9 15s. Bean Meal. Bristol, £14 5s; Hull, £13 3s; London, £14. Fish Meal: Bristol, £21; Hull, £20; Liverpool, £20; London, £21.

EGGS AND DEAD POULTRY.

The demand for eggs remains quiet and quotations are again lower, but the high prices are checking trade. Turkeys are plentiful, and it is reported that country markets are full and that big flocks are still unsold. At Bristol prices are easier, but at London both English and imported are dearer on the week; the demand is not good, however, buyers acting cautiously in anticipation that lower prices will rule in order to clear stocks. Other descriptions of poultry realise about late rates.

Week-end Prices—Eggs (per 120): British: 28s 0d, 27s 0d; Irish: 25s 0d, 23s 0d; Danish: 28s 0d, 27s 0d; Dutch: 28s 0d, 26s 6d; Australian: 23s 0d, 22s 0d; Belgian: 26s 0d, 24s 0d; Italian: 24s 0d, 22s 0d; Argentine: 18s 0d, 17s 0d; South African: 22s 0d, 17s 6d.

Dead Poultry (per lb.)—Fowls—Surrey: 1s 8½d, 1s 6d; Irish: 1s 3d, 1s 2d; Others: 1s 5d, 1s 3d. Ducks: 1s 3d, 1s 1d. Geese: 1s 3d, 1s 0d. Turkeys: 1s 10d, 1s 7d.

EGGS.

Per Doz.—Ashford: First, 2s 6d; Second, 2s 3d. Birmingham: First, 2s 9½d: Second, 2s 6d. Bridgwater: First, 2s 6d; Second, 2s 4d. Carlisle: First, 3s 0d; Second, 2s 9d. Chelmsford: First, 2s 9d; Second, 2s 6d. Denbigh: First, 2s 8d; Second, 2s 6d. Derby: First, 2s 10d. Dorchester: First, 2s 8d. Exeter: First, 2s 10d. Hereford: First, 2s 0d. Ipswich: First, 2s 9d; Second, 2s 6d. King's Lynn: First, 2s 9d; Second, 2s 6d. Lincoln: First, 2s 6d. Llandilo: First, 2s 9d; Second, 2s 6d. Newport (Mon.): First, 2s 6d. Norwich: First, 2s 6d. Oswestry: First, 2s 9d; Second, 2s 8d. Penzance: First, 2s 1d; Second, 2s 0d. St. Ives (Hunts): First, 2s 8½d; Second, 2s 6½d. Salisbury: First, 2s 4d. Shrewsbury: First, 2s 9d; Second, 2s 6d. Skipton: First, 3s 1d. Truro: First, 2s 2d. York: First, 2s 10d; Second, 2s 9d.

FOWLS.

Per lb.—Birmingham: First, 1s 3d; Second, 8d. Derby: First, *5s 9d; Second, *3s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 8d; Second, 1s 6d. Lincoln: First, *5s 0d; Second, *3s 6d. Llandilo: First, 1s 8d; Second, 1s 6d. Newport (Mon.): First, 1s 6d; Second, 1s 3d. Shrewsbury: First, *6s 0d; Second, *4s 6d. Skipton: First, 1s 4d; Second, 1s 2d. Truro: First, 1s 5d. York: First, *6s 0d; Second, *4s 9d.

DUCKS.

Per lb.—Birmingham: First, 1s 0d; Second, 10d. Denbigh: First, 1s 0d. Derby: First, *5s 9d; Second, *4s 9d. Exeter: First, 1s 4d. Hereford: First, 1s 3d. Ipswich: First, 1s 6d. Llandilo: First, 1s 8d; Second, 1s 6d. Newport (Mon.): First, 1s 4d. Shrewsbury: First, *6s 0d; Second, *4s 6d. Skipton: First, 1s 4d; Second, 1s 2d. Truro: First, 1s 5d. York: First, *6s 3d; Second, *5s 0d.

* Per Head.

"Eggs."

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, December 24th, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

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NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue.. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

EG

Wednesday, December 31st, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN.
Price TWOPENCE.

Twelve Months Post Free 12/8
Six Months „ „ 6/4
Three Months „ „ 3/3

Pen 59, Winner of Gold Medal in Harper-Adams Test, with score of 1,307 Eggs, value £10 11s. 2d.

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Longparish, near Whitchurch, Hants.

PRIEST & SHAW.

Wyandottes

UNDER ROYAL PATRONAGE

I.O.W

ALWAYS WINTER EGGS

Cockerels + **Pullets**

TESTIMONIAL LETTER.

The Homestead Poultry Farm, Amesbury, Salisbury.
8th December, 1924.

Messrs. Priest & Shaw,
Sandown, I.W.

Dear Sirs,—Will you kindly send me your mating list for next season.

I would take this opportunity of saying how pleased I was with the stock I had from you in 1921 (day-olds). The pullets laid exceedingly well; many put up fine records. Five pullets bred from them finished Third in their Class at the Wilts County Laying Trials last season.

Yours faithfully, VICTOR G. NEWBERRY.

WRITE FOR OUR 1925 MATING LIST.

SANDOWN —— I.O.W.

****

WE TRAP-NEST 2,000 PULLETS THROUGHOUT THE YEAR.

****

R.I.R. Pullet No. 44, bred from a "Heydown" hen, with record of 517 eggs in two years.

Early Hatched Pullets similar to the above from **10/6** each; individually recorded Cockerels, from **21/-.**

Sittings and Chicks in our Five Varieties Now Booking.

RHODE ISLAND REDS, WHITE LEGHORNS, BLACK LEGHORNS, WHITE WYANDOTTES, LIGHT SUSSEX.

John H. Dowden & Son, M. Council S.P.B.A., National Poultry Council, Fellow N.U.P.S., Southern Committee N.P. Institute,

"HEYDOWN," HEATHFIELD, SUSSEX.

Bad Luck!

We have all experienced good and bad luck with breeding, hatching, brooding, rearing and laying. We generally blame the varying good and bad seasons for these ups and downs, whilst noticing that "continuity" of good results appears to be scarce.—But continuity of good results **can** be attained by adopting

EXTENSIBLE UNIT BUILDINGS

for breeding pens, incubator and brooder houses, rearing and laying houses.—Hundreds of unsolicited testimonials from satisfied poultry people bear out the fact that this continuity is due to correct design.

Now that the brooder season is setting in, think well before you purchase new plant and bear in mind the "Bad Luck" so many poultry farmers experienced in the past season!

Extensible Unit Brooder House 30ft. x 15ft. supplied to F. C. im Thurn, Esq., Snow Hill Cottage, Crawley Down, Sussex. View of West Gable showing Day Nursery.

Forestall the "Luck" by proper plant—every chick saved and reared to maturity represents a credit of at least 10s. in your coming season's balance sheet.

EXTENSIBLE UNITS

Call and See Specimen Houses at BUSH HOUSE, Aldwych, W.C., or

Write to:—

W. H. COLT, M.N.U.P.S., M.S.P.B.A. Bethersden, near Ashford, Kent.

EGGS

THE OFFICIAL ORGAN OF THE
Scientific Poultry Breeders' Association

WEDNESDAY, DECEMBER 31st, 1924.

Editorial.

THE POULTRY CLUB STANDARDS.

It has been suggested that a joint committee, consisting of representatives of the leading societies, shall be appointed to investigate where the Poultry Club standards fail to meet utility requirements.

We have for a long time held that the club standards in themselves present no great difficulty to the utility breeder; more particularly does this apply to the recognised utility breeds. Certain modifications may be necessary, but no drastic alterations are required.

The difficulty arises from the fact that judges do not judge to standard, undue importance is attached to characters which are of no value, and the extremists have their way. Nevertheless, the appointment of such a committee can do nothing but good, and free discussion will clear the air.

If the fancier would realise that there are certain natural laws which in their operation render it impossible for the utility breeder to catch the eye of the "fancy" judge, there would perhaps be a little more sympathy between the two sections of the industry. At present, he with some justice accuses us of breeding bantams; we, with equal justice, retort that he is breeding "monsters."

No one knows better than the fancier that in order to get size he must continuously select from his slowest maturing birds. The early maturity, which is an economic factor with the utility breeder, is his bane; and deeply would he regret it, and small would be his chance on the show bench if his Orpingtons, Rocks or Langshans started their laying career at six months of age. He has placed a premium on size, with the result that certain breeds are no longer of economic value, and are now among the "has beens." We readily admit that the utility breeder has gone to the other extreme, but that is not the point at issue at the moment.

The Black Orpington is a typical example. The original standard stated definitely: Weight for cock, **when fully matured,** between 9 and 10 lbs.; hens, 7 or 8lbs. when fully matured. What chance would birds of these weights have in any of our classic shows to-day? One may say pretty definitely, that most judges of this breed will prefer size to quality. Again, in the original standard the plumage is described as "close." How far breeders have departed from this is very apparent even to a novice. No judge would look twice at a close-feathered Black Orpington to-day, yet close feathering is a characteristic of the layer; it is one of nature's laws, and it is hopeless for the utility breeder to fight against it. Judges will pass a bird with a crooked toe, and yet such a flagrant disregard of the standard as this is not only winked at but actually encouraged. These remarks do not only apply to the Black Orpington, there are other breeds of which it is equally true; and it is at least true of all varieties of the Orpington family.

Whether the actual modification of the standards will help the utility breeder or not depends entirely on the attitude of the judges and the specialist clubs. If the latter persist in appointing as club judges men who believe the art of the breeder consists in breeding some particular character to an extreme, and subordinate all economic values to this character, then we can only say that the time of the committee will be entirely wasted. Unless there is better control of the judges, and they are made to understand that a standard is drawn up for a specific purpose, and that they must observe it as far as possible, and the committee have some assurance that this control will be exercised by the Poultry Club, we fear that very little good will be done.

A DASTARDLY ACT.

It is very difficulty to understand the mentality of the individual who was guilty of the despicable act of mutilating the Cuckoo Leghorn cockerel, the property of Mrs. Parks, at Olympia. This bird won first prize at the Crystal Palace, and the only conclusion at which one can arrive is that some disappointed and envious exhibitor was the culprit. Mrs. Park's chance of repeating her success was of course destroyed. Fortunately such things are of rare occurrence at our shows. Whoever this individual was, we may take it that he is too thick-skinned to feel the contempt of every decent-minded person, which he has so thoroughly earned.

The interest in sex-linked inheritance has brought the Cuckoo Leghorn into some prominence. It is quite safe to say that the breed, which has been in existence for some years, is hardly known to the majority of poultry-keepers. It was introduced into this country in 1884—we believe from

America—where it was known as the Dominque Leghorn, but the evidence of Dominque blood is not very clear. That it will ever attain real popularity seems doubtful; there will always be the difficulty in breeding it true to colour. Some attempts were made to "make it" by crossing Barred Plymouth Rock hens with a Black Leghorn cockerel, with light under colour and good yellow legs. Although it has not been bred for egg production to any extent, it is admittedly a good layer, and a pen won a prominent position in one of the laying tests recently. There are ten varieties of Leghorns, if we include the Red, which, however, seems to be non-existant now. The Partridge, which was first seen in England in 1905, we rarely here of now; Piles and Duckwings are a purely fanciers' fowl; the Blue, which caused tremendous excitement when first introduced, has comparatively few followers. Like all blue varieties, it cannot be bred true to colour. Of all the varieties of Leghorns, the Whites, Blacks and Browns alone have won their way into popular favour; it is difficult to understand why the handsome Buffs remain in the cold.

YORKSHIRE FEDERATION OF POULTRY SOCIETIES.

INTERNATIONAL LAYING TEST, 1924-25.

Held on the Test Ground at Otley, Yorks.

The Test consists of 81 pens of five birds and a reserve, and 117 single bird entries, a total of 522 competing birds and 81 reserves.

To determine which are the best pens and single birds, all eggs will be weighed, and for each 2 ozs. produced (1⅞ ozs. the first six weeks) the pen or bird will be credited with one egg, and the number of eggs so arrived at will be valued at the average Keighley Market price for the month and the test decided upon the results. To provide information of value to the competitors, eggs are weighed individually twelve times during the test, but "points" and "values" are worked out from the collective weights of eggs taken at the end of each four days.

The period of the Test is 18th October, 1924, to 18th September, 1925, divided into twelve months of four weeks each.

REPORT FOR THE FIRST MONTH—18th Oct. to 14th Nov., 1924.

The birds arrived for the Test on October 15th and 16th, and were carefully examined individually by the Management Committee. They were a good all-round lot of birds, but a few were rather immature, while others appeared to have been in lay too long, which has resulted in moulting. The weather has been very unfavourable, winds and rain having been prevalent. A number of birds had to be treated for colds, two for ruptured oviduct, and two for vent gleet, but by the end of the month the number of sick birds was reduced to a negligible quantity. Bird No. 50 died from a ruptured oviduct.

Egg production has been rather uneven, some birds and pens having done exceptionally well, while others have not yet commenced to lay.

The leading pens for the month, with their records and positions, are as follows. Figures are eggs and points respectively:—

Class A.—Section 1.—Mrs. Clay, Long Preston, 104, 99; Mr. and Mrs. Wade, Bishop Thornton, 98, 92; R. H. Fryers, Bradley, Keighley, 70, 67.

Class A.—Section 2.—W. Sharp, Bell Busk, Leeds, 78, 82; M. A. Hindmarsh, Skelton, York, 73, 76; A. White, Malpas, Cheshire, 73, 74.

Class A.—Section 4.—Dr. J. E.Helm, Newchurch, Lancs., 109, 105; E. Watson, Earby, Lancs., 80, 84; Mrs. Clay, Long Preston, 80, 83.

Class A.—Section 5.—M. A. Hindmarsh, Skelton, York, 82, 82; Mrs. J. Shaw, Otley, 81, 77; Sutton & Son, Little Hoole, Preston, 61, 68.

Class A.—Section 6.—Davey & Son, Sutton, Keighley, 52, 54; Wright & Fortune, Keighley, 26, 25; F. R. Welch, Bewdley, Worcs., 24, 22.

Class C.—Section 9.—Any Variety Light Breed (Single Bird Section).—Wm. Wharton, Keighley (W.L.), 21, 21; Hugh Kershaw, Keighley (W.L.), 20, 20; Mrs. E. Kaye ,Pool, Leeds (W.L.), 20, 20.

Class C.—Section 10.—Any Variety Heavy Breed (Single Bird Section).—Alf. Sawyer, Crosshills, Keighley (R.I.R.), 23, 26; J. Brown, Glusburn, Keighley (R.I.R.), 21, 21; M. E. & A. Robinson, Bawtry (Lt. Sux.), 19, 20.

Total eggs laid during the month, 4,641, or 7.7 eggs per bird per month, including the reserve birds, few of which, however, have yet laid, though one of them has laid 24 eggs.

Mrs. VOWLES, Hon. Secretary.

The Internal Mechanism

of the Egg-Laying Machine.

By **J. L. ROSEDALE.**

III.—THE WORKING OF THE MECHANISM.

Continued.

As regard B vitamin, there are already observations concerning its effect on digestibility. In feeding large quantities of polished rice some of the rice is passed through the body unchanged. By the addition of B vitamin the amount of undigested rice is diminished. Thus in doing a digestibility test you are bound to get inaccurate results, unless you know that at the same time the proper amount of B vitamin is being supplied. Perhaps this is another way of saying that correct digestibility figures cannot be obtained for any particular foodstuff as the digestibility depends as much on the nature of the rest of the diet and the conditions of the animal as it does on the particular food you are pretending to work with.

Turning to the gizzard, what we have called breaking up the box in which the food is packed, is really an attempt to press out the fibre to such an extent that the utmost use may be made of the fat, protein and carbohydrate encased in it. The more fibre you have the longer this process takes, and as there is (in health) a continual tendency for the food to move on towards the cloaca the more fibre there is present in the food, the less time there is for a sufficient breaking down of that fibre to release the food principles. There is no doubt whatever that digestibility of a food depends to some extent on the amount of fibre.

The gut of the chicken is comparatively short, and this, coupled with the fact that fibre assists the movement of the gut (peristalsis), limits the possibility of the chicken dealing as effectively with the fibrous foods as might be desired.

The practical lesson is not to rely on digestibility trials and their fabulous results, but to bear in mind to use mainly only those foods which contain but little fibre. This practical lesson is dictated by two considerations: (1) The internal economy of the bird, and (2) the financial economy. It is no good spending our money on waste material. We shall have occasion to mention fibre from the quantitative aspect later on.

Sometimes, however, when we "press the buttons" the mechanism refuses to work! The reason is frequently obscure, though if proper stock has been used in breeding we may find that the trouble is due to one of the "buttons" having been pushed too hard, or perhaps one has not been pushed at all! We must look and see! Observation is the keynote of success in the management of live stock. Observation will tell you whether a bird is eating its food or not. If a bird eats well and yet gets ill and dies, observation of its inside may save the rest of the flock. One of the greatest troubles with animals generally is constipation. The actual cause of death may be due to decomposition of food in the gut and poisoning of the system by the decomposition products. It is not necessary to rely on medicine to prevent constipation. If feeding is carried out properly from day-old onwards, this malady should never occur. The materials which are contained in food are: Water, fat, protein, carbohydrate, fibre, salts, vitamins A and B. These will have to be individually dealt with in some detail, but what we want to get at from a practical standpoint is the PROPER PROPORTION of all these, which I have already urged so many times. Why should the proportion be so important, or how important is it? are two questions you may feel disposed to ask. I think we realised last time that one of the essentials of good feeding was to cause a proportionate growth between skeleton and soft tissues. Suppose then we had too little lime in the food of the growing animal and too much fat. Excess of fat gets deposited in the body, which would rapidly become too big and ponderous for the skeleton. On the other hand, with an excess of lime and too little protein we must not expect eggs from the hens. Eggs are not made of lime although they contain some, there is more protein in an egg and in a bird than there is lime. Shortage of A vitamin will lead to inability to utilise the mineral constituents correctly, so that a shortage of this vitamin may lead to a shortage of lime and phosphates to the body even though chemical analysis shows these salts to be present in abundance in the food. Again, A vitamin is associated with fat. If an excess of fat is present it gets deposited in the body. If B vitamin is short, digestion is not at its best. There is risk of constipation. Polyneuritis will occur in case of severe shortage of B vitamin, but it is quite possible to live for a long time and suffer digestive troubles, however slight, without obviously having polyneuritis.

By fibre we mean cellulose material which cannot be broken down by the digestive apparatus. This is sheer waste as far as nutriment is concerned, but nevertheless the most desirable proportion will have to be sought. One thing that fibre does is to act as a ram rod. It helps to control movement through the alimentary canal. As has been pointed out, the chicken's gut is not a very long one, so that we do not want too rapid a rush through, or else some of the food bought by our hard-earned shillings may not get sufficiently acted on by the enzymes and will be wasted. If enough B vitamin is present, there will not be any constipation. If you want to produce only a manure heap use plenty of fibre, if you want any other useful production from birds—don't.

It might, perhaps, be argued that if B vitamin is so important in digestion, how is it that digestibility figures do not give an estimate of the amount of B vitamin contained? One reason is that each foodstuff is so dependent on others mixed with it. Physiologically, diet is not just a mixture of foods, but a composite whole. Another reason is faulty technique. Protein, for instance, is reckoned in terms of nitrogen multiplied by a factor. Fat as the amount of material which is soluble in ether. Carbohydrate is got by difference without any chemical investigation at all!

This does not tell us whether we are dealing with protein or some other nitrogenous material—perhaps waste material from the digestive juices, nor does it tell us whether the starch of the food has been changed to a more soluble form of carbohydrate. Our results may be due to too much fibre in one of the other foods in the diet pushing it on too quickly. Do what we will, we cannot get away from the fact that there is a balance of the dietary essentials, and it is the object and duty of applied science to find it for you.

NOTE.—At the lecture a bird was dissected to illustrate the different processes. The bird had been fed ad. lib. on several days before being killed on the day of the lecture as follows:—Two days before, on middlings, coloured with carmine. The day before, on white rice. On the day, on yellow maize.

The maize was noticed throughout the length of the gut, the crop was packed with grain, considerably softened by the enzymes, the gizzard was doing its work, yet there were no signs of solid maize in the intestine. Traces of the coloured middlings were found in the lower gut and caeca, as also were a few solid particles of the white rice.

These observations serve to show that digestion is rapid in the fowl, and yet—even in the absence of much fibre—is nevertheless thorough.

THE EAST ANGLIAN EGG-LAYING TEST.

Report of First Month from 16th October to 12th November, 1924.

The Committee are pleased to report that although the number of birds entered for the current Test is not so large as last year the quality is much improved, and it would appear that much care was taken by competitors in their selection. The health of the birds on arrival was all that could be desired, and great care was taken with each pullet before it was passed into the Test; the throat of each bird being swabbed and the nostrils dipped, so as to prevent the development of colds which might have been contracted on the journey. The precautions taken have proved effective, and at the end of the period a clean bill of health can be reported.

Unfortunately, a number of birds arrived in lay, many eggs being taken from the crates; and the change of quarters, etc., has resulted in some of the birds falling into a moult—a dreaded feature of all tests, and one of the most difficult to prevent. The percentage of moulters, however, is small, and it is confidently expected that the low figure will be maintained.

The number of eggs recorded during the period is 1,381, the percentage of first grade being 60.3, which is very creditable considering so many pullets coming into production.

The increased weight of the egg for the following month may affect percentage of first grade eggs to be recorded, as all birds coming into lay will be required to produce an egg weighing 1 15/16 oz. from the commencement.

Leading Pens at the end of first month. Figures are eggs and points respectively:—

Section 1.—White Leghorns.—Dale Egg Farm, 36, 36; Wheeler, Capt. E. A., 21, 20; Allen Bros., 38, 18.

Section 2.—Any other Non-sitting Breed.—Cavanagh, Miss E. (Ancona), 16, 16: Lloyd-George, Major R., 20, 14.

Section 3.—White Wyandottes.—Greenall, S. & T., 69, 68; Laws, P., 59, 59; Pierce-Grove, Mrs., 54, 54.

Section 4.—Rhode Island Red.—Turner, H., 83, 83; Hasler & Co., Ltd., 78, 77; Fearon, E., 59, 55.

Section 5.—Any other Sitting Breed.—Sochon, T. H. (L.S.), 92, 92; Keech, Misses D. & M. (L.S.), 59, 52.

Section 6 (Single Bird).—Any Variety Light Breed.—Holgate & Gwyn (W.L.), 22, 22; Abercombie, Miss P. (W.L.), 21, 21; Richards, G. A. (W.L.), 20, 20.

Section 7 (Single Bird).—Any Variety Heavy Breed.—Aitchison, T .H. (R.I.R.), 22, 22; Mullens, Gen. R .L., C.B. (W.W.), 22, 20; Fearon, E .(R.I.R.), 20, 20; Southampton Lodge P.F. (L.S.), 19, 19; Erman, A. G. V. (W.W.), 19, 19.

Mr. W. T. WILLIAMS, Hon. Secretary

Modern Poultry Feeding.

By **TOM NEWMAN.**

SHELL-LESS EGGS AGAIN.

A reader complains that he is getting shell-less eggs, but he does not think the feeding is at fault, because they only occur in one pen. His method is as follows :—Dry mash hoppers are open day and night, a handful of grain to each bird morning and evening. The mash formula is as follows :—40 lbs. sharps, 20 bran, 30 maize meal, 10 clover, 10 pea meal, 10 Sussex ground oats, 10 gluten meal, 20 fish meal. This is a highly-forcing mash, and as my correspondent is feeding it to his breeding pens, the sooner he modifies it the better, or he will be sadly disappointed in the hatchability of his eggs. His remark that he is "out for eggs next month and does not intend breeding from them until February" is rather naive. Having forced them for eggs till the end of January, he expects to get good hatchability and strong chicks in February. The fact that this particular pen are laying shell-less eggs is in itself evidence that the mash is too stimulating. If he continues it a little longer he will find the same trouble occur in his other pens. All birds are not constituted alike, and a highly-fecund hen would feel the effect of this feeding much more quickly than her sister who may be a moderate layer; but even a moderate layer will lay shell-less eggs in the flush season if the feeding is at all forcing. The mash would be much better for hens intended for breeding if it were altered to :—40 lbs. sharps, 10 bran, 10 clover, 15 S.G.O., 10 maize meal, 5 pea meal, 10 fish meal.

I wish it was possible to make everyone understand the effect of under-nutrition during the growing period. It accounts for more than half the wailing as to the scarcity of eggs during the autumn and early winter. Admittedly this has been an exceptionally bad year, and the general opinion is that pullets all over the country are a month behind; but I have been on many farms where it is evident that the weather conditions do not offer a sufficient explanation, and it is only too apparent that there has been serious under-feeding, more particularly during the late summer when the pullets are about four months old. On a farm which I visited recently, fully 30 per cent. of the April-hatched pullets showed no signs of reddening up, and many others were only just beginning to lay. On handling many of these birds I found that they were all on the light side, the eggs which were produced by the flock were all below average size; few of them weighed 1$\frac{3}{4}$ ozs. It would seem that at what is one of the most critical periods for growing stock that they are left to shift pretty much for themselves. Young stock neglected in this manner will never lay their complement of eggs. It is all very well to study the egg market, but it should be a secondary consideration to the study of the birds.

WHEAT AND DIGESTIVE TROUBLE.

I have received the following letter from Mr. Somerville :—

> "Early in the spring of this year, one of your readers complained of the ill-effects of feeding kibbled wheat to young chicks. In April, 1923, I lost 15 ten weeks' old birds from some digestive complaint, the symptoms of which were a distended, puffy crop, and water as liquid running from the mouth, drooping wings and liquid white excreta. This year I lost eight birds about the same age with the same symptoms, and twelve others rapidly going the same way. Calling to mind the remarks you have made from time to time on the properties of maize as a feed, I cut out the wheat and my birds recovered in two days. Not satisfied with this I again included wheat in the grain feed. Down went my birds again. I cut out the wheat for ever and have never had another case.
>
> In August last several pullets (April-hatched) began to trail their wings and droop, showing signs of puffy crops. I closed the dry mash hoppers and fed on maize only. Birds recovered. Opened dry mash hoppers again till birds showed further signs of digestive trouble. Closed hoppers and fed only maize. Birds recovered. Reduced proportion of thirds in dry mash to half and again opened hoppers. No further trouble.
>
> I did not increase the thirds in the dry mash for those particular birds until two months later. Is all this conclusive enough to point to wheat as the cause? I now use only maize as grain feed over the whole flock, and wheat only in the forms of sharps in the dry mash. The said pullets are now laying 5.6 eggs per week per bird."

Mr. Somerville's experience does point to wheat as the cause of the trouble, but we cannot condemn wheat as a grain on that account. He must have been using a particularly bad sample. It is an unfortunate fact that high prices generally prove a great temptation to unscrupulous merchants; there is an idea that anything is good enough for a fowl, and any rubbish that can be bought at a low price is ground up and sold to the unfortunate poultry-keeper. It is time the authorities stepped in and put a stop to adulteration and fraud which is carried on. Some of the stuff sold as wheat middlings at the present time is fearful and wonderful. In how far chick mortality is due to unsound wheat which has been bought up and treated we have no means of knowing, but there is reason to suspect that it is far

(Continued at Foot of Column on Next Page).

On Breeding.

By Capt. G. C. HESELTINE.

THE APPLICATION OF LINE-BREEDING TO EGG PRODUCTION.

Although there is a certain conflict of opinion in the deductions of Pearl, Goodale, Hurst and others from their work on the inheritance of fecundity, one fact emerges quite plainly, and that is that fecundity is inherited. It is, therefore, essentially a matter of breeding. The exact mode of inheritance of the factor or group of factors which determine high fecundity in the hen is still a matter for debate and perhaps further investigation.

One of the chief divergencies of opinion centres round the question as to whether the determining factor or factors for high fecundity are sex-linked or not. That is, whether high fecundity is transmitted from the female to her sons only and from the male to his daughters only, or whether it is transmitted from either parent to male and female progeny alike.

This point is not of very great importance to the practical man breeding for heavy egg production, because to put the matter beyond all doubt, as far as his stock is concerned, he will ensure that his females all give trap-nest records sufficiently high to be safely regarded as carrying all the factors for high fecundity. He will also test his males by trap-nesting their female progeny, and retaining only those males which have shown that they give high-fecund progeny. The breeder proper will record all his matings and their results, so that it will not be difficult for him to secure from suitable stock a number of males and females which can safely be regarded as high fecund.

In testing females by the trap-nest a few important precautions must be taken. In the first place the pullets must be normally reared, and neither forced nor retarded or a line record of practical value cannot be expected. In the second place, during the period of test the birds must have an adequate but not a forcing ration. It is outside the scope of these articles to deal in details with feeding, since it is assumed that before he starts line-breeding will have mastered the elementary principles of feeding.

Another point of importance is that reliable trap-nests must be used, and all precautions taken to ensure the greatest possible accuracy of the records. There must be no guesswork or the allotting of found eggs to individual birds. Further, the test must extend over a reasonably long period —for safety, twelve months.

Since high fecundity is a matter of breeding, it is also a matter of "strain," and a fixation in the strain is a matter of line-breeding. As it has been emphasised before, the standard of the birds selected for the formation of a strain must be a very high one. After due precautions have been taken to select birds representative of their breed, of exceptionally good type and character, vigour and stamina, they must also have, for the purpose of fixing a high-fecund strain, a sufficiently high standard of fecundity to establish them without doubt as **exceptionally** sound high-fecund birds.

The divergence of opinion existing as to the actual figures of a high fecundity standard, whether for winter or full year, renders it difficult to suggest a minimum figure with a reasonable chance of accuracy. Various tests have been conducted on widely divergent feeding formulæ, and in different climates under different methods of management, so that comparison between the figures of the various investigations is difficult. From a consideration of the published data supplied by Pearl, Goodale, and Hurst, and of the records normally obtained amongst high-fecund flocks on well conducted farms, it would appear that to be on the safe side the trap-nested record of a hen should be at least 250 first-grade eggs in twelve months, on normal diet, and management, if she is to be considered as carrying the factors for high fecundity, with a view to using her as the foundation of a strain.

The purity of her characters can only be determined by breeding, so that it must be understood that both males and females to be used in the establishment of a strain by line-breeding must not only carry the necessary factors, but also prove themselves further by a breeding test.

The establishing of a strain by line-breeding, even when well done, incurs a certain amount of risk ; and the breeder would be well advised to be on his guard against the use of "stunters," such as the over 300-eggers. They may be used if they are exceptionally good in **all** respects, but they should be used with great caution, and the breeder must be quite sure that the brilliance of their trap-nest performance does not blind him to their physical and constitutional weaknesses.

MODERN POULTRY FEEDING.—Continued.

higher than is generally believed. This question certainly demands very serious attention. It is time that the merchants understood that the poultry industry is not to be the dumping ground of all their rubbish and refuse. It is an open secret that there are certain firms who buy all the damaged grain, all the sweepings, etc., which are ground up and sold at exorbitant prices under some high falutin' name. When there is any mortality above the average, which cannot be explained by the absence of any contagious disease, our readers will be well advised to consider the wheat, for there is an enormous quantity of damaged stuff this year, and no doubt some of it will be mixed in some of the much advertised dry chick feeds sold at about four times their value.

Answers to Queries.

By the **EDITOR.**

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland, will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Major C. G. Saunders, D.S.O., B.V.Sc., M.R.C.V.S., Tarring Road, West Worthing.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Major Saunders.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Major Saunders).

ALL questions should be addressed to the Editor. Major Saunders does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

S. T. (Salop) sends four samples of sharps, prices being two at 11s. 9d., one at 12s. 6d., and one at 14s. The sample at 14s. is the best sample, but the best value is "R" at 11s. 9d. Although this contains a fair percentage of ground-over bran, on value I should recommend my correspondent to use this, and compensate for any little deficiency by slightly increasing the maize meal in the mash.

M. A. C. (Tilton-on-the-Hill). Your mash would be very much better if you reduced the bran by 10 lbs.; and, if it is intended solely for egg production, I would omit the S.G.O. and replace same with an equal quantity of maize meal. You must be particular as to your gluten meal, as of late we have traced much digestive trouble to the use of this, and have warned our readers against it. It will not be necessary to use more middlings to dry off the mash, and it would not greatly upset the balance if you did do so, but it would appear to me that you are using far too much water for the purpose of mixing the mash.

X. Y. Z. (Taunton) asks if it is advisable to use wheat husk as bedding in the brooder instead of chaff. He has a nice clean sample and has used it with success in his laying houses for some time. I have used wheat husk with success on several occasions, and, although there may be occasional losses from it, due to the sharp spike at the end of the husk, they have been very very small, and I do not think there is any great risk. He also asks what number of R.I. Reds he could keep in a house 16 ft. by 12 ft. I would not exceed 50 to 55, as such birds require more floor space than the Leghorn.

F. N. F. (Wheatley) asks what is the best way to give sulphate of iron to hens in their drinking water, and how long one ought to continue giving it at a time. Also, the same question with regard to sulphate of copper. When sulphate of iron is given in the drinking water the best method of doing so is to dissolve two ounces of powdered sulphate of iron in a quart of water and add one teaspoonful of the solution to every pint of drinking water. This should be continued for a fortnight and then a week's rest given. Sulphate of copper is given for a more specific purpose :—i.e., for roup or colds. It should be given until it effects its purpose. The dosage is as follows:—Dissolves four ounces of sulphate of copper in a quart of water and add one ounce of the solution to every gallon of drinking water. I cannot recommend the book for the amateurs on the treatment of hens as regards illness which F.N.F. asks for.

T. W. (Boston) writes that he has been using a "poultry tonic" which the proprietor guaranteed to double the amount of eggs from hens in a week, and also to get them through the moult quickly. The effect has been that T.W. lost six of his best layers in a week, and on discontinuing it had no more losses. The price is 20s. per 7 lbs. He asked me to state, through "Eggs," my opinion of it, and, if possible, what its ingredients are. It is the first time he has tried a quack remedy, and now states it will be the last. What the ingredients are I am afraid I cannot say ; they are so perfectly well disguised. There is some form of iron, but the rest of the matter seems to consist principally of millers' offals coloured, although there appears to be the addition of Epsom salts and fenugreek of course. If we could only make our readers understand what utter nonsense these so-called "tonics" are, and how unnecessary they are to healthy and productive birds, there would be a considerable amount of money saved in the course of a year. Ninety per cent. of them consist principally of carbonate of iron, and it is absurd to pay 20s. per 7 lbs. for this stuff which can be probably made for about 7d. Even one of the best known of these "tonics" which has been on the market for years can be bought for about 1s. 4d. per lb. Tht best tonic is a slight change in the food and the free supply of fresh green food. More than that is unnecessary, and if your birds are slackening off a teaspoonful of cod liver oil to the pound of mash would do them more good than anything else, and is far less costly and risky.

G. D. (Stockport) sends samples of bran, fish meal, thirds and S.G.O. in such minute quantities that it is rather difficult to find enough to express an opinion on. The bran is a moderate sample.

The thirds just about average quality; a little on the coarse side. The fish meal No. 1 is superior to No. 2. The S.G.O. are of good average quality. Will G.D. in future please send samples in bigger quantities so that one may be better able to judge? He asks how to distinguish a good sample of bran from a poor one. A good sample should have white on the inside of the flake, should not feel harsh to the touch, and if the hand is plunged into a bag it should come out with some of the flour adhering to it. In a poor sample, the reverse is the case.

"Marguerite" (Barrow-in-Furness) states that on 20th November Mr. Hamnett, in his lecture at Manchester, said, "It is not a good proposition to keep the dual-purpose fowl if the aim is egg production, for we cannot have table fowls and a maximum of eggs at the same time." She asks if this is correct. Mr. Hamnett is correct in so far as you cannot breed for egg production and get a really first-class table fowl. When you are breeding for egg production you are not selling table fowls, but selling your surplus stock for table birds, which is an entirely different proposition. That is what Mr. Hamnett means. In further reply to "Marguerite." The best time to hatch Wyandottes, R.I. Reds, Buff Rocks and Light Sussex would be: Buff Rocks and Light Sussex in early March and Wyandottes and R.I. Reds in the latter part of the same month.

POST-MORTEMS.

S. F. The post-mortem examination of the White Leghorn pullet showed the cause to be dropsy, associated with atrophy of the liver and very great enlargement of the heart. These conditions, of course, induce great debility before terminating fatally, and quite account for the symptoms during life. Without some very definite history of mismanagement, it is very difficult to account for this state of things, and one can only conclude that lack of constitutional stamina is at the root of the trouble. This bird was quite undeveloped and the ovary showing no signs of activity. The want of grit would not produce such conditions, but, in my opinion, grit is essential to proper digestion, more especially as regards the corn ration. Medicinal treatment in these cases is futile, and as the other birds are doing well there can be no need to change the management as regards diet, etc., with perhaps the exception of supplying more grit and the substitution of meat meal for fish meal (if the latter is part of the ration).

C. W. G. Apoplexy was the cause, brought about without doubt by the excitement of the show. There was a large clot of blood at the back of the brain, and the lungs showed much engorement with blood. The sexual organs were fully developed and in a state of physiological activity, which, of course, would increase the excitement, raise blood pressure, and tend to produce the apoplectic condition. It is one of my rules to report the same day as the subject is received, but just at this seasons parcels are sometimes a day or so behind the letter.

M. Y. The post-mortem examination of the W. Leghorn pullet showed the cause to be peritonitis, due to the death and decomposition of a number of immature yolks, some of which were still attached to the ovary, others being free in the cavity. This condition and the general appearance of the ovary is highly suggestive of a recovered case of B.W.D., and it would be interesting to know whether this bird or any of its associates were survivors of an attack as chicks. I am reporting direct, under the arrangements made with the Editor, last May, whereby queries are no longer answered in the paper by this department, but only by letter.

T. B. T. The post-mortem examination of the R.I.R. pullet showed the cause to be pneumonia, both lungs being solid and hepatised. The liver, which weighed 14 ozs., was in a state of amyloid degeneration, and this would have most probably carried her off sooner or later if the pneumonia had not first occurred. The latter was not of the infectious variety, but probably was induced by chill, the liver condition being a factor in lowering general resistance to the effects of chilling.

SHELL-LESS EGGS.

To the Editor of "Eggs."

Dear Mr. Newman,—When you were at Liverpool you answered my question of shell-less eggs for which I thank you, also your article on the same.

I would like to say what a splendid paper "Eggs" is, and how I look forward each week for it, as there is always something fresh to learn from it.

If it will not weary you, I would like to tell you what can be done in a back-yard. While the war was on I thought I would like to do something to help the food supply, so got a few hens, and up-to-date I have had 10,894 eggs. They were only market hens, mostly from Ireland. Twelve months last September I got a dozen White Leghorn pullets, and they averaged 195 each up to moulting. This September I bought twelve more. They have laid 149 in October, and 110 so far this month. I may say the house faces East, and they are months without any sun, but I have plenty of green food, and plenty of scratching litter, and feed them on your formula.

Yours faithfully,

"A BACK-YARDER."

SELLING FOWLS.

He came at tea-time. We had just finished our tea, my brother and I, when I heard the gate click, and, looking up, I saw a tall gentlemanly figure, evidently once military, rounding the spruce trees at the end of the lawn.

I ran into the kitchen and told the maid to open the door, because the front door bell does not ring, and he was asked in, giving the name of Captain ———. I went to see him. He wanted pullets. "Will you come and see them?" I said, and he came.

We looked at the pullets, to my hitherto unbiased mind, perfect beauties, well grown, a healthy silken sheen on their feathers—real beauties. He handled them. There was something the matter with this one ; there was something worse still with the next ; worse and worse with the others. He would see the year-old hens. I scattered some grain in the house, the hens went in ; we went in also and shut the door. We handled this one ; it did not do, we put it down and handled another, ad lib., until we began to handle the same ones over again, after which I suggested that we should open the door, and put outside the ones that did not do, and that I should put the possible ones in a house by themselves. We did so, and by this means gradually the house was emptied. Out of thirty, three had been selected as possible ones to buy.

We went back to the pullets. We did the same with these. Finally two out of a houseful were "selected." We now went to select from out of these five. We handled them and put them down, and handled them again. I offered him a cup of tea while he made up his mind about it. Finally he decided to have all five. This process took, by the clock, from 4.30 till five minutes to seven.

This is a true story. Oh! ye long-suffering race of poultry-keepers.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP. POULTRY LAYING TRIALS, 1924-1925.

REPORT FOR THE FIRST PERIOD.

The Trials opened on 1st November; 28 Pens of 10 birds each are competing in the Championship Sections—13 in the Light Breed Section and 15 in the Heavy Breed; 220 pens of six birds each are competing in the Small Flock Trials, comprising seven Breed Sections, of which White Leghorns with 57 pens and White Wyandottes with 48 pens are the strongest sections. 78 birds have been entered in the Single Bird Trials, making a total of 1,678 competing birds, which, with 220 reserve birds, gives an agregate of 1,898 birds in the trials.

The first period terminated on 28th November, and was marked by the usual variations in production—several pens have put up good records, but many birds have not yet come into lay and moulting has been very prevalent. The general average of egg production is a fraction under ten eggs per bird, slightly higher than last year. Eggs are on the small side, particularly among the Leghorns, who have an average of over 19 second grade eggs per pen, and whose percentage of second grades works out at 31 per cent. The following are the leading positions at the end of the first period:—

SUMMARY OF THE LEADING PENS.

CHAMPIONSHIP TRIALS.

Section 1.—Light Breeds.—Frank Snowden (W.L.), Keighley, Yorks, 155 eggs; A. White (B.L.), Malpas, Cheshire, 137 eggs; Miss N. H. Bell (W.L.), Ightham, Kent ,139 eggs; H. Sutton & Sons (W.L.), Little Hoole, Preston, 130 eggs; Capt. J. T. Mee (Buff L.), East Dereham, Norfolk, 115 eggs.

Section 2.—Heavy Breeds.—W. Lister (L.S.), Northiam, East Sussex, 202 eggs; E. Watson (W.W.), Colne, Lancs, 199 eggs; F. H. Collins (W.W.), Bewdley, Worcs., 180 eggs; G. B. Metcalfe (W.W.), Lechdale, Glos., 145 eggs; Miss M. Fowler (W.W.), Feniscowles, Blackburn, 157 eggs.

SMALL FLOCK TRIALS.

Section 1.—White Leghorns.—W. McMahon, Newton Mearns, Renfrewshire, 123 eggs; J. & W. Purdie, Lanark, 116 eggs; E. Priestley, Halifax, Yorks, 107 eggs; J. McLaren, Ramsbury, Wilts., 103 eggs; R. McKenzie, Winklebury, Basingstoke, 107 eggs.

Section 2.—White Wyandottes.—D. W. Gunston, Bramdean, Hants, 139 eggs; Allen Bros., Harrogate, 116 eggs; G. Keith Simmons, Honiton, Devon, 117 eggs; S. & T. Greenall, Grantham, Lincs., 107 eggs; P. K. Berry, Market Harborough, 108 eggs.

Section 3.—Rhode Island Reds.—Mrs. Jellis, Rugby, 102 eggs; F. & A. H. Sanders, Lutterworth, Rugby, 98 eggs; Dashwood Farms, Ltd., Deddington, Oxon, 92 eggs; F. J. Marston, Biddenden, Kent, 89 eggs; W. R. Partridge, Cirencester, 78 eggs.

Section 4.—Sussex.—F. Rossall Sandford, Shrewsbury, 120 eggs; A. Robinson, Bawtry, Yorks, 94 eggs; A. Hughes, Malpas, Cheshire, 85 eggs; Miss Harrison Bell, Welwyn, Herts, 86 eggs; W. Bradbury, Tottington, Bury, 84 eggs.

Section 5.—Black Leghorns.—W. A. Lansley, Whitchurch, Salop, 100 eggs; Wilson Beattie, Rothersthorpe, Northants, 95 eggs; Co-op. Wholesale Society, Whalley, Lancs., 95 eggs; Misses Allday and Rawson, Peterborough, 74 eggs; Lady Anderson, Sharnbrook, Beds, 66 eggs.

Section 6.—Any Other Light Breed.—Storer Bros. (An.), Didsbury, Manchester, 91 eggs; Co-op. Wholesale Society (An.), Whalley, Lancs., 69 eggs; H. Lynden Lemon (La Br.), Devizes, 63 eggs; Blaksley & Blyth (La Br.), West Moors, Dorset, 62 eggs; H. B. Howe (Min.), Leicester, 62 eggs.

Section 7.—Any Other Heavy Breed.—Miss M. Fowler (Buff Orp.), Blackburn, 120 eggs; Australorps Farms, Ltd. (Aust.), Kingsland, Herefordshire, 99 eggs; F. R. Welch (Rocks), Bewdley, Worcs., 90 eggs; Miss P. Mills (Rocks), Bishop's Castle, Shropshire, 73 eggs; O. C. Brown (Rocks), Scunthorpe, Lincs, 52 eggs.

SINGLE BIRD TRIALS.

Section 1.—White Leghorns.—W. Hamnett, Blackpool, 21 eggs; N. S.Robinson, Spilsby, Lincs., 20 eggs; F. S. Low, South Godstone, Surrey, 21 eggs; W. M. Golden ,Eaglesfield, Leire, Rugby, 20 eggs; J. Potter, Worsley Mesnes, Wigan, 19 eggs.

Section 2.—White Wyandottes.—A. Robinson, Bawtry, Yorks, 25 eggs; A. White, Bickerton, Malpas, Cheshire, 24 eggs; Mrs. Alec Wilson, Garth, Breconshire, 22 eggs; B. Franklin, Shrewsbury, 21 eggs; S. Street-Porter, Ely, Cambs., 20 eggs.

Section 3.—Any Other Light Breed.—A. White (B.L.), Malpas, Cheshire, 19 eggs; Capt. C. W. Shepard (B.L.), Malpas, Cheshire, 17 eggs; W. Hamnett (An.), Blackpool, 14 eggs.

Section 4.—Any Other Heavy Breed.—A. White (L.S.). Malpas, Cheshire, 23 eggs; L. J. Measures (R.I.R.), Keystone, Hunts, 21 eggs; Chivers & Sons, Ltd. (L.S.), Histon, Cambridge, 21 eggs; W. M. Golden (L.S.), Eaglesfield, Leire, Rugby, 19 eggs; E. Leslie Pattison (R.I.R.), Longton, Staffs, 19 eggs.

THE LANCASHIRE UTILITY POULTRY SOCIETY. INTERNATIONAL EGG-LAYING TEST, 1924-5.

FIRST REPORT commencing October 18th to November 15th, 1924.

A number of the birds have gone into the neck moult. This is noticeable in R.I.R. and W. Wyandottes. The light breeds have done better than the heavier breeds in this respect. Notwithstanding this, the Management Committee consider they are an excellent lot of birds, both for type and quality, and have been well chosen for their work, and a very pleasing feature is the improvement in the size of egg. Especially is this noticeable in the W. Wyandotte. If this continues we shall not have to complain about the small egg in the Wyandotte.

Figures are eggs and points respectively :—

SUMMARY OF LEADING PENS.

LARGE BREEDERS.—Section 1.—Crabtree, W., Twiston, 175, 168; Wilson, Mrs. M., Garth, 161, 155; Snowden, F., Cowling, 147, 147.

Section 2.—Hull, J. R., Thornton-le-Flyde, 149, 155; Harvey, F., Bretherton, 149, 137; Parker, T., Longton, 127, 122.

Section 3.—Hamnett, W., Blackpool, 100, 95; Welch, F. R., Bewdley, 92, 95; Hollins, C. H., Chorley, 92, 84.

Section 4.—Snowden, F., Cowling, 169, 163; Aspden, R. H., Balladen, 152, 140; Rodwell, R., Nelson, 144, 137.

Section 5.—Snowden, F., Cowling, 135, 138; Rodwell, R., Nelson, 125, 114; Collinson, J., Garstang, 115, 111.

SMALL BREEDERS.—Section 6.—Helm, J. E., Dr., Newchurch, 85, 83; Lodge, J. W., Holmfirth, 106, 82; Pierce-Grove, Mrs., Taunton, 79, 79.

Section 7.—Humber, C. C., Hoole, 90, 82; Fletcher, W. H., Woodplumpton, 69, 75; Barker, Miss G. M., Scorton, 74, 72.

Section 8.—Rossall-Sandford, T., Shrewsbury, 100, 100; King, W. J., Leamington Spa, 28, 25; Cook, R. N., Tarleton, 7, 6.

Section 9.—Sutcliffe, J. W., Hebden Bridge, 104, 91; Fisher, F. F., Tarleton, 91, 85; Machin, W., Huntingdon, 86, 80.

Section 10.—Lansley, W. A., Whitchurch, 89, 92; Rawlinson, O., Waverton, 85, 77; Stuart, J., Garstang, 72, 68.

Section 11.—Mart, Guy, New Longton, 69, 64; Johnstone, J. & D., Fife, 51, 41; Priestley, Eliz., Oxford, 42, 40.

Single Bird.—Section 12.—Heavy.—Ronson, W., Preesall, 23, 22; Hull, J. R., Thornton-le-Fylde, 21, 22; Paterson, E. N., Tarporley, 22, 22.

Single Bird.—Section 13.—Light.—Pedigree P.F., Stratford-on-Avon, 23, 20; Fryers, R. H., Bradley, 20, 17; Rawlinson, O., Waverton, 17, 17.

Novice Breeders.—Section 14.—Heavy.—Walker, Miss, Rothersall, 81, 78; Ellwood, W., Galgate, 58, 55; Hargreaves, R., Barton, 41, 35.

Novice Breeders.—Section 15.—Light.—Wright & Purves, Lonton ,93, 90; Marquis, S., Greenhalgh, 71, 68; Bradley, R., Button, 77, 67.

Scientific Poultry Breeders' Association.

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

A WORD TO OUR ADVERTISERS.

One word to our advertisers of stock and eggs. Two or three of our readers have written to the effect that from a certain firm—which I believe consists of one individual only—they have received a letter couched in the following terms :—

> "Please send us as soon as possible 100 ———— hatching eggs. If you cannot manage 100 at once, you can make up with (here two breeds are mentioned). Render your account to the above address."

The account has been rendered before the goods were dispatched, and in each case no business was done. In one other case, a lady advertising stock received a telegram from this "firm" asking that a number of pullets should be sent at once. Here, again, no business was done, the lady refusing to part with her pullets unless she had the cash. Moral, do not part with the goods if you receive such letters as this without the cash.

COUNCIL MEETING.

The monthly meeting of the Council was held at the Memorial Hall, Farringdon Street, on Wednesday, December 17th, the President, Mrs. Hunter, being in the chair. Present :—Miss Maddison, Mr. J. G. Kitson, Mr. J. Smart, Mr. Bostock Smith, Mr. J. H. Dowden, Mr. Hedworth Foulkes, Mr. Fletcher Hearnshaw, and Mr. A. H. Paine.

The Minutes of the last meeting were read, confirmed and signed.

The Secretary reported that 147 new members had been elected during November. The stand at the Palace Show had been interesting and instructive, and they had been much complimented upon it ; but the attendance at the show had been poor, and they had not had such a large number of visitors as usual in consequence. He had visited the Keighley Branch, and they had had a very successful meeting.

The Treasurer's report was declared highly satisfactory and adopted. The Treasurer reported that he hoped to send out the Annual Register before Christmas. There has been delay, but that had not been the fault of the staff. As compared with last year, there were twenty extra pages of literary matter, and there were numerous illustrations.

Mr. J. G. Kitson, Chairman of the "Eggs" Committee, said his report was as usual very satisfactory ; the circulation continued to increase, and they had reason to be pleased with the financial situation.

Food Purchase Scheme.—The Secretary reported that the committee had met, and the scheme was submitted to the Council. With certain modifications it was agreed to adopt it. It was pointed out that the success of the proposed scheme depended to a very great extent on the members themselves. The Council could only take a part in it ; unless members combined it was quite impossible to help those who were unable to buy in lots of less than two tons. Eventually it was agreed that Mr. Bostock Smith, Mr. Hemelryk, Mr. Dowden and the Secretary should interview certain firms to arrange as to supplies, and when this had been arranged, details should be published. The hope was expressed that, when the scheme was complete, those members who availed themselves of it would be supplied with foodstuffs of reliable quality. The Secretary said that unless quality was ensured it would be useless to proceed.

Mr. Bostock Smith moved that a resolution should be sent to the National Poultry Council requesting that, in the interests of the industry, members of societies affiliated to the Council should submit any dispute that may arise between them to an arbitration committee, to be appointed by the Council, and so avoid legal proceedings as far as possible. After discussion this was unanimously agreed to, and the drafting of the resolution was left in the hands of the proposer and the Secretary.

Experimental Committee.—The Secretary reported that the committee had had another meeting, and the arrangements for the experiments to begin at Wellingham under the supervision of Miss Malcolm and Mrs. Pember were well forward, and it was expected that a start would be made early in January.

The President said she had great pleasure in proposing that a letter be sent to Major and Mrs. Eden, conveying the heartiest congratulations of the Council on their marriage.

The date of the next meeting was fixed for Wednesday, January 28th.

A TABLE CROSS.

Mr. H. J. Berry writes me in reference to a recent enquiry for a cross with the R.I. Red in order to produce a smaller table fowl, and to still preserve the laying qualities. My impression is that my correspondent used the word "type" and not qualities. In any case, my advice was to use a Houdan male, and Mr. Berry states that the following cross was excellent :—An Old English Pheasant Game cockerel to R.I. Red hens. The progeny made up into splendid table birds, very compact and smaller than the Reds. He does not know the laying qualities of the pullets. As the Pheasant Fowl has not been bred for heavy egg production, I am inclined to think that the laying qualities of the pullets would not be so good as that of the Houdan cross.

IMPORTED EGGS.

Mr. Broughton sends me particulars of several prosecutions for the alleged faulty labelling of imported eggs at the Bolton Borough Court, under the Sale of Foods Order, 1921. They were the first prosecutions of the kind in the borough.

In the case of Hargreaves and Son, of Derby Street, who pleaded guilty, a case of eggs was observed to be labelled: "Guaranteed fresh eggs, 2½d. each, five for 1s." These were imported from the Argentine. Defendants were fined 20s. including costs on two other summonses.

Frank Cooper, of Deane Road, was selling "Reliable fresh eggs at 2s. 6d. dozen." These had come from Ireland. Summoned on three accounts he was fined 20s.

David Keighley, also of Deane Road, pleaded not guilty, the Clerk declining to accept his plea of "Guilty, with a reservation." The eggs in his case were said to be labelled "2½d. each, equal to new laid." Defendant told the official he was aware of the Order, but thought he was quite right in stating "Equal to New Laid." They were Russian eggs. Defendant told the Court that after the inspector had gone he found that the Russian eggs he had in hand had been sold out, and those that were being sold at the time of the visit were English cold-stored new laid. He was fined 15s.

John Blenkinship, also of Deane Road, labelled his eggs "Guaranteed fresh, 2s. 6d. per dozen." They were Irish eggs, and he was fined 10s. As they were fresh to him at the time he thought he was in order.

Mr. Broughton also encloses a cutting in which a statement is made that eight million eggs have arrived in London from the Argentine, and ten millions are on the way from Morocco, Egypt, Denmark and Holland, and the Sale of Foods Order, 1921, is ignored by 90 per cent. of the grocers in the country, and of these it may be said that 80 per cent. do not know of its existence.

KEIGHLEY BRANCH.

The Secretary asks me to say that the Branch will hold an Egg Show for hatching and commercial eggs on January 14th. Mr. Ernest Croft, of Hessay, Yorkshire, will judge the eggs, and afterwards will lecture on "From Shell to Maturity."

Mr. Croft has kindly offered a sitting of White Leghorn or White Wyandotte eggs as Specials for the best exhibit of hatching eggs and the best of commercial eggs.

Recently Mr. P. A. Francis, the Poultry Commissioner, visited the Branch, and lectured to the members. Everyone was very delighted. Afterwards he visited the Yorkshire Laying Test at Oford, and expressed himself as very pleased indeed with the manner in which the test had been planned and the construction of the plant. The situation was, he said, ideal.

OUR FRONT COVER.

This week we have depicted on the front cover a pen of White Leghorns, the property of Major Hayland Wilson. This pen won the Gold Medal at the Harper-Adams' Laying Test with a score of 1,307, value £10 11s. 2d., in the 48 weeks—or an average value of nearly 35s. worth of eggs per bird.

Their flock sisters were successful in winning the silver medal in the Northern Test just ended.

Major Wilson tells us that he is mating up the pick of these pens to a son of Miss Ransford's "Pensford Promise." This should result in some wonderful stock, as the male will have a wonderful pedigree behind him.

Major Wilson acknowledges his indebtedness to the first President of the S.P.B.A., and one of its founders, our old friend the Rev. Seymour Shaw. His winning pens were sired by cockerels supplied by Mr. Shaw, and he has received much help and advice in building up his strain of White Leghorns from him.

Mr. R. M. Doddington, a son of Brig.-Gen. Dodington, C.M.G., has lately been taken into partnership by Major Wilson.

LIVERPOOL AND DISTRICT BRANCH.

The December Monthly Lecture and Egg Show was held in the "Common Hall," 3, Hackins Hey, Liverpool, on Thursday, 18th December, 1924, at 7.30 p.m., the President of the Branch, Mrs. Hodgins, being in the chair.

Mr. Wm. Hamnett, Myrtle Poultry Farm, Blackpool, gave an interesting paper on "The £ s. d. of Poultry Breeding." He gave the audience to understand that one of the principles of success in the poultry industry was to keep a tight rein on the £ s. d., and to see that no little details are missed out of the accounts. Also he advised not to buy pullets cheaply, but to go in for a good thing; it pays better in the long run. Good pullets from good fecund stock produce plenty of eggs at the right time if fed properly, and if everyone would bear that in mind we would soon "Clem" the foreign egg. Also he gave some interesting figures on the prices of eggs, and advised the audience to sell their eggs retail if possible. A very interesting question on "How much per week would it cost to feed a pullet"? was answered by him to the effect, "That he could feed a pullet on 1d. per week, but at that sum he wouldn't expect her to lay any eggs. 3½d. per bird per week, at the present price of foodstuffs, would give a good return from a laying pullet."

A vote of thanks was moved by Mr. J. H. Clansey, and seconded by Mr. Robert Thomas, and carried unanimously.

Attendance was 49 members and friends.

RESULT OF EGG SHOW.

White Section.—1st and 2nd, Mr. Robt. Thomas.

Brown Section.—1st, Mr. J. H. Hodge; 2nd, Mr. W. Burns.

(Continued at Foot of Column on Next Page).

Correspondence.

To the Editor of "Eggs."

Dear Sir,—The comments on my previous letter have been interesting, but to my mind not conclusive. They fall mainly into two groups, those inspired by the fear of the dishonest trader, and those based on the assumption that it is always cheaper to breed than to buy.

As to the dishonest seller, we all know there are too many in the poultry business, but he can be avoided, if only buyers will take the precaution of making enquiry of knowledgeable friends or of one of the Poultry Societies before dealing with a glib advertiser of whom he knows nothing.

No one has dealt with economics of the question except in a general way. The writers assume that it is cheaper to breed than to buy day-olds at round about 1s. 6d. each. But is it so? As no one has produced any figures, I venture to give the estimates on which my suggestion was based in the hope that these may have the effect that my previous letter failed to produce, of inducing others to give actual costs from their own experience.

I appreciate the strength of the individualistic sentiment which prompts Mr. T. W. Toovey and others to maintain in effect that a poultryman deserves to go under unless he can breed his own stock successfully. But still, it must be worth while investigating more closely a suggestion based on the business truism that specialisation increases efficiency and profits. After all, we depend on others to manufacture our foodstuffs and many other necessaries, so why should the suggestion to depend on others for the manufacture of our livestock be rejected off-hand. It may be more interesting to breed, but is it more profitable for the commercial egg farmer?—that is the problem to be solved.

If he has a market for hatching eggs or stock birds, he is in a different position. I am dealing solely with the case of the egg farmer pure and simple, large or small.

To arrive at the true cost of any farming operations is difficult, and the cost of day-old chicks is no exception. It clearly is **not** the market price of the egg, plus the cost of incubation, that can be stated as being all the costs connected with breeding and hatching, divided by the number of chicks hatched, easy to state but troublesome to arrive at.

To see what these costs amount to, let us take the case of a man keeping as many layers as he can attend to with some semi-skilled assistance. This number on a conveniently arranged farm is about 1,200. To get the maximum profit, all except the breeding hens should be pullets. To keep up the prolificacy of the flock, the annual replacements must be bred by males from high record dams. These can be got by purchase or by trap-nesting part of the flock and breeding them. Such birds will cost from £3 to £5 each, and rather than pay out these prices most farmers prefer to breed, not realising that for equal quality the cost to them is certainly not less. To find the high-record birds to breed his cockerels from the farmer must trap-nest about 100 selected pullets. If he does this his flock of layers must be reduced to 1,000 plus the cockerels kept to select from finally and spaces, for a man can only attend to about one-third as many trapped as untrapped layers. If he trap-nests materially fewer than 100, or does not do so for the whole year round, he runs a serious risk of breeding cockerels from unsuitable dams and letting his egg average down. Be it here noted that more poultry-keepers lose money by trying to save money on cockerels than from any other cause. To breed his replacements he will require to keep 200 second-year hens which will lay about 25 per cent. fewer eggs than his pullets. To breed 800 pullets he will require to incubate at least 3,000 eggs, giving with a hatch of 66 per cent. of eggs set 2,000 chicks. A large proportion of the prolific strains of White Leghorns are not too easy to rear, and a loss of 20 per cent. must be reckoned on. Further, he sustains a loss by not being able to force his whole flock to lay the maximum possible. Assuming that he does not face egg production in 500 from which he selects his 200 breeders, he loses five to ten eggs from each of these 500.

Taking the gross profit, i.e., receipts from eggs less food and labour, per pullet at 5s. per bird, the gross profit per hen after using her eggs for incubation at 1s. per bird, the bare out-of-pocket cost of cockerels, allowing for spaces and loss on excess number reared to maturity at £1 each bird used and the cost of the incubators and incubator house at £150, we have the material to arrive at the minimum cost of day-old chicks. In fact the cost is more, because certain items of substantial value.

S. P. B. A.—Continued.

Tinted Section.—1st, Mr. Rd. Handley; 2nd, Mr. J. H. Hodge.

Special presented by Mrs. Hodgins.—Mr. J. H. Hodge.

The Annual General Meeting and election of officers will be held in the "Common Hall," 3, Hackins Hey, Liverpool, on Saturday, January 17th, 1925, at 7 p.m.

Will any members who are willing to put forward their names as Officers of the Committee please let the Hon. Secretary know as soon as possible.

R. J. THOMAS,
9, Grey Road, Walton, Liverpool,
Hon. Secretary.

but difficult to estimate precisely, have been omitted:—

Loss by reduction of flock by 200 pullets	£50	0	0
,, by keeping 200 hens in place of pullets	40	0	0
,, of 5 eggs per bird on 500 pullets at 1½d.	15	12	0
Cost of cockerels, 15 at £1	15	0	0
,, of depreciation at 10 per cent. on incubator, etc.	15	0	0
,, of interest at 5 per cent. on cost of incubator, etc.	7	10	0
,, of 3,000 eggs at 1s. 6d. per doz.	18	15	0
,, of incubation at 1½d. per egg set	18	15	0
Total cost of 2,000 chicks	£180	12	0

or 1s. 9½d. each, or over 21s. per dozen.

At a cost of 1s. 9½d. each, there must be a substantial loss on every cockerel hatched, however disposed of, so that White Leghorn pullet chicks, in effect, cost the commercial egg farmer who breeds them at least 2s. 6d. each, without reckoning losses in rearing.

Yours faithfully,

M. W. SLADE.

APEX HOUSES.

To the Editor of "Eggs."

Dear Sir,—If Mr. Toovey's letter on the subject of "Apex" houses is written with the idea of bolstering up the lean-to type, he has failed lamentably, for not only does he agree with, but confirms practically all my objections to it.

I am proof against the sneer contained in his opening sentence, since my case is one of those in which "initiative is not quelled by weight of knowledge." It does, however, present rather a delightful comparison with the kindly appreciation of Major Hesketh and others, who have at least given me credit for a genuine effort towards progress, rather than resuscitation.

Mr. Toovey, violently, not forcibly—since there is no force or help in empty criticism—denounces this form of house-in-order to warn "*inexperienced*" people against purchase or erection.

Mr. Toovey must not talk like that; it is both silly and dangerous. One and all of my correspondents might well take exception to it, as it also implies lack of discernment. It is quite within the bounds of possibility that one or more of these houses may, in the near future, be seen on a farm running rather a greater head of stock than 8,000.

Another contemplates extending his flock by 600 next year, and using these houses for the purpose. Such people could hardly be lacking in experience or discernment.

With regard to Mr. Toovey's solitary objection that he has "had the patience to deal with" that of "reflected" light into the "Apex" house. I take this to be a printer's error for "projected."

In the house I built there is glass all along one side about six inches above floor level and 1ft. 6in. deep. It can be on both sides if required, but I have not found this necessary. If the presence of glass is a paramount objection, then the "Apex" house fails in this respect since the sides must not have any openings above floor level.

That the shape of the house is of ancient design is very probable. Indeed it would be curious if it had never been tried. But that the principle of ventilation by induction has been tried, found wanting, and become obsolete, I beg leave to doubt, and it is only in this respect that I suggested originality.

So much, then, for the one objectionable feature—in Mr. Toovey's opinion—that he has acquired sufficient patience to deal with, but, to use an Americanism, he must not be allowed to get away with it at that.

I pass over his manure pits, as my knowledge of large-scale work is too limited to judge of their necessity. I once saw one in a 300 bird house, but, as I thought it was there by accident, rather than design, considered it inadvisable to call attention to it. I would, however, much like to know how it is ventilated, and what kind of atmosphere hovers above it on a very hot, still day.

May I point out with regard to his preference to lighting a house from the front only, that, according to the law governing the radiation of light, i.e., "That the intensity of light is inversely proportional as the square of its distance from the source," the value of the floor lighting at one foot in the house would be 100 times less at 10 feet, and 196 times less on the back wall, 14 feet away in the house such as he describes.

In stating the limitation of the lean-to type of house in regard to local situations, and atmospheric conditions he endorses (inadvertently, I am afraid) the principal advantages I claim for the induced air current system of ventilation, i.e., *independence of atmospheric conditions, and the necessity of operating ventilators and shutters in accordance with these varying conditions*, especially on hot, still days.

Apart from everything else in his letter, Mr. Toovey, in another direction, has said either too much or too little. He has made a statement in regard to floor space which may lead "inexperienced" people into a lot of unnecessary expense.

He states that four square feet per bird is the correct area, but gives insufficient details of the systems on which the birds are kept. He implies that semi-intensive work is the best. He might define "semi-intensive" a little more exactly.

But this, Sir, opens up an entirely different question, and has nothing to do with "Apex" houses, since floor space is only a matter of length. I would, however, be glad of a close definition of semi-intensive work, because working systems may have a very great influence on both the size of house required and the results obtained.

I am one of the "inexperienced," but may I be pardoned for giving a brief description of my own practice, merely for the sake of an illustration to show why four square feet per bird *might* be regarded as excessive.

The house is regarded only as a laying and night-perching piece of plant. I do not encourage birds to be in the house during the day, except for feeding from the dry mash hoppers, which, during the winter, are open day and night. The house (100 bird capacity) is in an enclosed pen of grass land of 700 square feet area, and this pen is changed over to new ground once a year, and the old ground is dressed with lime and basic slag; the magnificent crop of hay from this is stored for litter.

Birds are fed with grain (maize only on your teachings) an hour and a half before dark, and *once a day only* in the case of adults. The grain is thrown down in a line round the edges of the pen, always in the same place until it gets worn out. This saves the rest of the land from too rapid mutilation. Only on very wet days is grain thrown into the litter in the house. My reasons for this procedure are as follows:—

I regard the grain feed largely as a "body maintenance," and "full tummy" ration for the night, while the egg constituents, etc., are supplied and controlled by the dry mash. Cabbage in the form of "flat polls" is always in the pen during winter. April hatched pullets this year are now yielding 5-6 eggs per bird per week. Frankly, I do not know if this result is good, bad, or indifferent, and only give it to complete the illustration. Beyond a little sneezing after a spell of very wet weather in October, there has never been a case of illness in the house. The space under the house is always dry and greatly appreciated by the birds for dust baths and rain shelter.

The floor space area is 2¼ square feet per bird.

Yours faithfully,
C. WINTHROPE SOMERVILLE.

OBSERVATIONS RE BRAN.

To the Editor of "Eggs."

Dear Sir,—I have been a poultry-keeper in a small way for ten years, and have taken in "Eggs" for about five years, and no man can read "Eggs" for five years without being more or less an authority in the art of poultry-keeping.

When I get another poultry journal I have a look at it, but when "Eggs" arrives on Wednesday, I read it.

Having read Mr. C. H. Jeanes' letter re Bran, I can by my own observations endorse all he has said. Nine-tenths of our poultry-keepers do not grasp the full value of good broad bran. Where did I get my first clue? From "Eggs," of course.

You will remember, three years or more ago, an article was written in "Eggs" on the value of bran on account of the mineral salts it contained, etc. Now mineral salts and vitamins to me spell HEALTH—what we poultrymen call condition, and to my mind condition is everything.

I decided at the time to litter my next batch of chicks on bran as an experiment. Proof of the Pudding says I. That batch of chicks grew and thrived beyond all expectation. So I have used nothing but bran for litter since in the brooders. Never a sign of leg weakness or mopey chicks. They made bigger birds, coming on to lay early, possessing vigour and stamina. None of the 2½ lb. Leghorn on my place now. I also pin my faith to bran as a conditioner. I was asked to go to see some birds belonging to a Mr. Short in February, 1922—56 of them. One look told me they were out of condition. I prescribed your mash, and 50 per cent. broad bran to be gradually reduced till the bran in the mash was 20 per cent. At the time of my visit three to four eggs a day was the output, seven days later it was fourteen, another week 31, and the third week the average was 4.25 per bird. At the end of the year, 1922, my pullets were laying well, but the 1921 hens, although through the moult, seemed to hang fire. So I put them on the 50 per cent. bran and 50 per cent. mash. In a fortnight they were all in lay. So bran was reduced to normal. This year, owing to removal, I could not get any chicks out until 3rd June. I said, "Never mind, they will all be laying by Xmas." They are, the last one started on the 15th December. They have had their bran.

A friend of mine has some birds, hatched from the same pen as mine. His were hatched 18th May. They are not laying. About one-third started, and now they have stopped again, and mine, in spite of late hatching, are also the biggest birds. He is a wet mash feeder and never uses bran. But I think he is going to, as I left him very thoughtful at our last meeting. I am a firm believer that our Editor is a past-master in the art of feeding, but I do not think he will lecture me too severely for omitting from his formula—one part middlings and substituting one part bran. My method is, if birds are too fat, or out of condition, add a little broad bran. If getting a little thin, add a little S.G.O.

Yours faithfully,
H. C. TURNER.

THE COST OF PRODUCTION.

To the Editor of "Eggs."

Dear Sir,—We have completed the test of the cost of producing a flock of pullets to laying age—that is, to the time that the birds lay a sufficient number of eggs to pay the cost of their keep, and the cost works out as under.

I might explain that the pullets (Rhode Island Reds) were hatched much later than they should have been, viz., early May; the hatching results were good, but heavy losses occurred in rearing. The weather was bad, which did not help matters, so that I consider, under more favourable conditions, the cost per pullet would be quite 6d. less.

Nothing has been charged for labour, which is such a variable factor. Actually these birds were reared experimentally, and in addition to the usual routine work of the farm :—

ACTUAL ACCOUNT OF THE COST OF PRODUCTION OF A SMALL FLOCK OF 35 RHODE ISLAND PULLETS.

	£	s.	d.
Cost of feed from May to 30th November	10	6	1
Rent of Land	0	10	0
Litter and sundries	0	9	6
Eggs for hatching	2	12	0
Oil for Incubator and Brooder	0	16	8
	14	14	3
Deduct cost of 47 cockerels sold during Aug. and Sept	5	19	2
Actual cost of the pullets	£8	15	1
Average cost per pullet to laying age	0	5	0

COST PER PULLET AFTER DEDUCTING SELLING PRICE OF COCKERELS.

	£	s.	d.
47 cockerels sold, dressed and delivered to consumers	10	5	3
Balance of expenses after sale of cockerels	4	9	0
Making the cost per pullet to rearer after balance of receipts and expenses	0	2	6½

Trusting that the above is sufficiently plain, and will prove of value to some of your readers.

Truly yours,

W. L. ADCOCK.

ECONOMIES.

To the Editor of "Eggs."

Dear Sir,—I have been reading with great interest the articles and letters that have been appearing in "Eggs" lately about economies on the Commercial Side of Poultry Farming. "Ex-Airman" is under a wrong impression, as you say yourself, in a number of his ten points. The main point that I know of from hard facts is No. 6. I took a small holding under the Government scheme from the Cheshire County Council (thank goodness! I haven't got it now), the rent was out of all proportion to other holdings of a similar size—12 acres. I paid about £4 10s. per acre for a piece of land with no road to it, no water, no fences on one boundary—the buildings were to be erected later. That was the first year. The second year they erected me an army hut, for living, storage, etc. I gave them notice and quitted at the end of that year, just when the house and buildings, such as they were, were erected. In those two years I paid well over £100 in rent and rates, and never lived between brick walls. Can any man make poultry farming or any other branch of agriculture pay on a place like that? (The rent was higher with the house and buildings.) I know for a fact it is the same in all parts of the country.

No. 2, Cost of Foodstuffs.—Everybody is up against this. Most of the grains and meals are grown abroad, therefore we have to pay their price. Until the Englishman will go over there and buy direct from the producer, and cut out all the middleman profits, prices will be high. I don't mean to say poultry farmers can go and buy direct, but the large corn merchants ; there is a great deal of holding up of corn for higher prices on the other side by large financiers.

Regarding co-operation.—Your words are very true in your Editorial. Nobody will start with you. I wrote in these columns a year or two ago, but had no response whatever.

Now about No. 1.—A good business man will receive a good price for hen eggs ; at any rate in this part of the country—Manchester district. I can never understand where all the eggs come from at these country markets, which are auctioneered. Why sell eggs like this for the middleman and dealers to buy at their own prices? They are generally in rings. I would give up producing eggs commercially if I could not sell better than in a market or auction. And can anybody tell me why in any market report in the poultry press they don't give the price of eggs, etc., in Manchester, Liverpool, or any Lancashire or Cheshire towns? (Perhaps the prices are too good to report compared with most places.)

Can Mr. Slade tell me how many commercial egg farmers there are that never sell a day-old chick or hatching egg, which he has not allowed for in his economic idea of commercial work?

My great point is, and always will be, until we get to the bottom of it :—Millions of eggs are sent thousands of miles over land and water, incurring expense of course, and sold in this country for less (some classes of eggs only a fraction less) than our own new-laid eggs. How this is done, we want to find out. If other countries can produce so much cheaper, we are at fault somewhere. Whether we mark English eggs or foreign eggs this will be the same, and we must find where the trouble is.

Can you, or any reader, tell me the prices of eggs sent from different parts of the world in their own Home markets, compared with the price the same eggs (only weeks older) are sold at in this country, and also compared with our own new-laid eggs, of course allowing for the rate of exchange? There are other points I will write on later, but I must close this long epistle now.

Yours truly,

N. S. WOOD.

To the Editor of "Eggs."

Dear Mr. Newman,—Re the article by "Ex-Airman." May I be allowed to give another view? I am not a poultry expert yet, neither am I holding a brief for anyone, or class, but I do think that "The Lord helps them that help themselves." If people rush into **any** business that they know hardly anything of, and when the money doesn't come rolling in according to plan, cry about what the Government or other body has not done, and in the same breath shriek about taxation and subscriptions, I fancy there is something wrong in their make-up.

It is up to everyone to do the best for themselves, and undoubtedly union is strength, yet if people won't organise, what can they hope to gain?

What would "Ex-airman" say if he heard of a man failing in any business, that hadn't the ear of the public, crying that the Government were not helping him after his doing his bit in the war?

It makes me sick this prating of service; it's **our** country, isn't it, and most of us had someone to go for?

Admitted, the "stay-at-homes" got plums. I've also heard of the same fruit in the army, but we have to take human nature and civilisation as we find it.

I've groused and grumbled with the rest, but I'm proud to have done a bit for **my** country and **my** family.

Then he mentions the corn merchant. Hasn't he heard of competition? Doesn't he know the state of trade generally, "Daily Express" notwithstanding, and can Co-operation do **much** better than private enterprise?

If a body of people subscribe thousands to start a society, they all want a return as good as the next investment, and I fancy the man who subscribed £100 would expect a bigger cheque than his neighbour who sent a modest "fiver."

It's a sorry affair, realisation, after our dreams out there, for I'm afraid we thought that "bringing grist to the mill" in "Civie" life was going to be just as care free as drawing the rum ration.

Our tails used to droop at times, at least mine did, and does now, but it's an untold blessing when, having got over the rough patch, up goes the rudder again.

Yours sincerely, T. P. J.

Some Fruit-Growing Notes

to help Poultry-Keepers.

By F. W. WHEELER, F.R.H.S.

REPLY TO "N.," SUSSEX.—It is with pleasure that I sit down to pen some remarks on the points raised in your letter, and I propose to deal with them in such a way that they may be of general interest; thus you will understand any additions or digressions I may take from your actual questions. I thank you for your very kind expression of appreciation of my "Notes."

PREPARING SITE FOR TREES.—When making pockets the usual method of removing grass, two inches thickness, taking out nine or ten inches of soil, breaking up the subsoil another ten inches and then when returning the earth burying the grass (chopped up) between the two spits, would not be ideal in land with a heavy clay subsoil, for it would certainly encourage surface water to collect, and not being able to easily get away bring about a stagnant condition unhealthy for the trees.

I would advise the preparing of pockets, rather larger in area than the average 3 ft. squares, or 3 ft. 6 ins. circles, to the full depth of the top light soil (burying turf as usual) so as to encourage the tree, as much as possible, in surface rooting, and by spreading out the roots high and flat, check the tendency of them striking down into the cold clay subsoil and producing, as it undoubtedly would, coarse rank growths instead of fruiting wood.

I should like to take this opportunity of saying how foolish some are to remove the very valuable turf and use for other purposes elsewhere instead of leaving it in the ground directly under the roots of our trees. It may seem silly to bring up this matter, but only the other day I heard of another case of a man wanting to sell his turf before planting fruit trees and failing to realise that what he gained in immediate cash he more than lost respecting the future value for the success of his planting.

Under certain conditions where bush trees are being planted in sloping ground, about 12 ft. apart, and with a greater distance between rows, then strips of ground could be dug (as already described) from top to bottom, thus the risk of water collecting in pockets is avoided.

HALF-STANDARDS OR BUSH.—When poultry is to be run continuously on the ground, under the fruit trees, then I think that the half-standard on the free stock with a 3 ft. 6 in. stem is best for general purposes. Especially is this better than the "Standard" in places open to strong winds, but if the birds are run on the ground for part of the year only, and taken off when fruit is ripening up, then the "open centre" bush trees are the better proposition. For these the broad leaf Paradise stock, which has a dwarfing influence and provides masses of fibrous surface roots, will be more suitable and give us quicker cash returns.

(Continued at Foot of Previous Column.)

Buying maidens and training them oneself is a saving on initial outlay over the more usual way of purchasing trees two to four years old. I always find that young trees settle down better to the ground and often overtake the older planted ones, as long as they are carefully attended to from the first. With the maidens you can also adjust the length of stem to your special requirements, bearing in mind that a longer stem is better where light breeds are run than with the heavies.

(To be continued.)

The Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Bruginer, A. L., "Lyndhurst," Bromfords Drive, Wickford, Essex.
Eccott, Mrs. Read, Plot 116, Nr. Knatts Farm, Nr. Kemsing, Nr. Sevenoaks.
Nicholls, J., 4, Signal Road, Fazakerley.
Crawford, Jas., Allens Wood, Telham Lane, Battle.
Shattock, Frank, Rosemount, Craddock, Cullompton, Devon.
Lowcock, R. L. C., Moss Farm, Ollerton, Knutsford.
Jackson, W., Kent's Poultry Farm, The Hawthorns, Tadley, Basingstoke.
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Booth, H., Saunders Lane, New Longton, Nr. Preston, Lancs.
Allardice, Robert Lockhouse, Slamannon, Stirlingshire.
Morrison, Miss H., Ballymore Rectory, Tanderagee, Co. Armagh.
Mansford, H. A., Nettleham Poultry Farm, Lincoln.
Banton, Miss F., Brook Farm, Burgess Hill, Sussex.
Blight, Rev. W. H., The Rectory, Churchstanton, Chard.
Boyer, Mrs. E. R., Falcon House, London Street, Basingstoke.
MacGregor, Donald G., c/o Mrs. Doig, 75, East High Street, Forfar.
Campbell, W. J., Carrickblacker, Portadown, Co. Armagh, Ulster.
Thornber, Wm., 8, Clarence Road, Barrow-in-Furness.
Peake, J. Steele, "Sandhey," Sparks Lane, Thingwall, Nr. B'head.
Salter, Mrs., Romford Poultry Farm, Pembury, Nr. Tunbridge Wells.
Whitehead, R. B., North Cheriton Manor, Templecombe, Somerset.
Breadmore, Geo., Coldshaw P. Farm, Haworth, Nr. Keighley.
Pighills, John, Cragg View P. Farm, Cononley, Nr. Keighley.
More, Jas. Allan, Field Farm, Burghfield, Reading.
Shaw, Sam, 2, Upper Horley Green, Halifax, Yorks.
Pennington, M., 11, Tontine, Orrell, Nr. Wigan, Lancs.
Hall, Capt. E., Swinbrook, Burford, Oxon.
Digby-Jones, Lt.-Col. D. G., Queen Anne Farm, Jacob's Well, Guildford.
South, Mrs. R., Brook Side P. Farm, Brockton, Much Wenlock, Shropshire.

SCOTTISH NATIONAL POULTRY COUNCIL.

ANNUAL GENERAL MEETING AND POULTRY CONFERENCE.

The Annual General Meeting of the S.N.P.C. was held in the Lecture Room, Agriculture Department, the University of Edinburgh, on Saturday, the 6th December. The President, R. Scott Miller, Esq., in the chair.

The Minutes of the last Annual Meeting were read and approved, as was also the Treasurer's report, which showed a good balance in hand.

The Hon. President, Her Grace the Marchioness of Graham, and the Hon. Vice-Presidents were re-elected.

The following officials were elected:—President: J. Purdie, Esq., Lanark. Vice-Presidents, D. Brown, Esq., Cockburnspath; J. B. V. Cummings, Esq., Carlops. Secretary and Treasurer: G. W. Macpherson, Esq., 2, London Street, Edinburgh. Auditor: D. Brown, Esq., Cockburnspath. Solicitor: M. Oliver, Esq., S.S.C. and N.P. Bankers: The Bank of Scotland.

The Committees were re-elected. There were 19 new members elected to the society. The Executive were instructed to purchase medals for the Laying Trial, to be awarded where warranted by the competition. The Executive were also empowered to procure medals for competition in utility classes at shows, the competitions being confined to members of the society.

After the business a short Poultry Conference was held, when the following papers were read:—Mr. T. Newman, on "Chicken Rearing"; Mr. J. Meekings, on "Pedigree Breeding"; Miss Murphy, on "Laying Trials."

The papers were very interesting and instructive, and many of the members present took part in the discussion which followed, a very enjoyable and profitable afternoon being spent.

In moving a vote of thanks, the Chairman coupled with the vote the name of Dr. Crew, as it was on his initiative the conference was arranged. The vote of thanks was very heartily given.

G. W. MACPHERSON, Hon. Sec. and Treasurer.

Pioneer Poultry Farm,
Kalaw, Fedtd. Shan. States, Burma.
11th June, 1924.

"Dear Sir,—Your excellent paper is worth all the other poultry papers put together. I glance through the others and read yours from beginning to end for fear I shall miss something useful."

Yours faithfully,
(Signed) DOUGLAS J. ANSELL.

"Eggs."
The Official Organ of the Scientific Poultry Breeders' Association.
Wednesday, December 31st, 1924.

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Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

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Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

SPECIAL NOTICE.

We frequently receive complaints from our readers to the effect that when replying to advertisers, letters are often returned owing to the address given in the advertisement being insufficient. For the sake of both our readers and advertisers, we would therefore ask every advertiser to have as full an address as possible inserted in all announcements.

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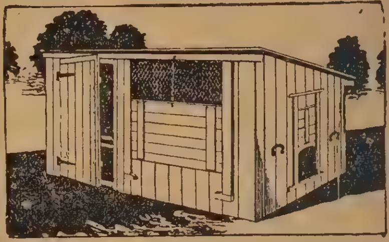

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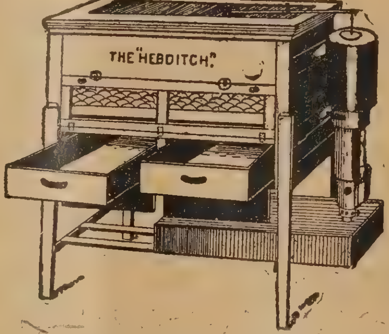

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By

Tom Newman

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Some Everyday Questions

By Tom Newman.

Breeding.

Q. What is meant by STRAIN? Why should I not buy a cockerel of 290 egg strain?

A. By STRAIN is meant the race or family. There are good and bad of every strain; a cockerel may be the son of a 50-egg hen, and still be of 290-egg strain. He will inherit the constitution of both his dam and sire, and that constitution with that of his mate he will transmit to his progeny. We want the constitution of the 290-egg hen transmitted, not that of the 50-egg hen, so the male should be bought on the record of his dam and sire's dam.

Q. What is meant by "ZERO,' "L1," and "L2"?

A. A "Zero" bird is one that lays no eggs during the winter months. "L1" and "L2" were terms used by Dr. Raymond Pearl, and mean the first and second production factors. "L1" is the primary physiological factor, which in co-existence with F. causes a bird to lay eggs during the winter months. "L2" is the second physiological factor, which in co-existence with F. and L1 leads to high fecundity. Quantitively L1 indicates that a hen lays less than 30 eggs during the winter months. The Council of the S.P.B.A. define an L2 bird as one which lays 40 or more eggs in any consecutive 90 days between October 15th and January 31st inclusive.

Q. What is meant by LINE-BREEDING? What is its object?

A. By line-breeding is meant the restriction and mating to one line of descent. Its object is to discourage variability, and to "fix" desirable characters by preventing the introduction of others which are likely to prove dominant to them, as, for example, broodiness is dominant to non-broodiness.

Q. Does it tend to breed improvement?

A. Line-breeding itself does not tend to breed improvement. That is to say, the mere fact that you are breeding in line does not do so. Breed improvement results because it is essential that your foundation stock should be exceptional, that individual selection shall always be practised, so that your standard is being continually raised.

Q. How can I tell when I am breeding too closely?

A. When Line-breeding of necessity you will always breed closely; you will not breed too closely provided you never lose sight of individual selection, and breed from the exceptional only. By the "exceptional" is meant, not only egg production, but health and vigour, type and bodily development. You will breed too closely if you mate inferior individuals, this will be exhibited by: First, lower fertility; second, poor hatchability; and third, poor rearability.

Q. What makes for success in Line and Inbreeding?

A. First, the human factor; secondly, exceptional foundation stock possessed of the desired characters with constitutional vigour; thirdly, selection must be based on the individual and not on a paper pedigree.

Q. Has the influence of a previous mating any influence on subsequent matings?

A. Meaning, if we cross two breeds and wish later to breed them pure, will the future progeny be "pure" or show the taint of the cross? No, when a pen has been mated and the male removed, the percentage of infertile eggs increases every day, and the longest recorded period after the removal of the male on which a fertile egg has been laid is the 19th day. As it is the ovary which is fertilised and not the hen, we shall appreciate that it is impossible for the progeny of a second mating to be influenced by a previous one.

Q. What is the cause of REVERSION?

A. Inheritance is from the race, and is not limited to the characters of the immediate parent. The individual is possessed of, and is capable of, transmitting all the characters of the race to which he belongs.

Q. How do you explain VARIABILITY?

A. The new individual is the product of two others, and of necessity differs from either. He partakes of the nature of both, though not always in the same degree. We may find the blood of the sire or dam more strongly impressed on different individuals of their progeny.

Q. How can I best avoid Variability?

A. By mating as far as possible " within " your strain. That is, do not resort to outcrosses. If you introduce new blood do it on the female side.

Q. Is crooked breast bone hereditary?

A. No. It is an acquired character in most cases, and is due to chicks being allowed to perch on unsuitable perches before the cartilage has hardened into bone. In other cases it may be due to a deficiency of lime salts in the ration, or to environmental conditions. The worst form is that which is due to the chicks inheriting a tendency to " soft " bone. This occurs in some cases in highly productive females, which eliminate more calcium than their intake. If a pullet begins to lay at five months old and is very productive, the intake of calcium is not equivalent to the output, and, as 85 per cent. of the mineral matter of bone is calcium phosphate, we shall understand this tendency to soft bone in the progeny, and the belief that the crooked breast bone is hereditary. It is the tendency to soft bone which is inherited, not the crooked breast.

Q. What is meant by " WRY-TAIL "? Is it hereditary?

A. A tail carried to the right or left side and not in direct line with the body. It is usually due to a deformed spine. Such a defect is certain to re-appear in the progeny.

Q. My Wyandottes throw a large number of single combs. How can I prevent it?

A. You can only prevent it by discovering the individuals among your breeding stock which are impure for rose-comb—that is to say, carry the single-comb factor. To do this you mate your rose-comb females to a single-comb male; those which are " pure " for rose-comb will throw all rose-comb progeny, as rose-comb is dominant to single. Now mate the male you intend to head the breeding pen to a single-comb hen. If he is " pure " all the progeny will be rose-combed. Of course, the progeny of these matings you must not breed from, as they carry the single-comb factor.

Q. I am troubled with small eggs. If I mate my hens to the son of a large-egg dam, will I get larger eggs?

A. You must first consider the cause of the small egg. The reproductive organs develop with the body. When a pullet begins to lay development almost ceases, hence if we get a very early maturing pullet we get a small bird and a small egg. She will transmit this early-maturing factor to her progeny. If you mate her to the son of a large-egg hen which has been slow to mature, some of the progeny will take the constitution of the dam and others that of the sire. Those that take that of the dam will mature early, and you will again have the small egg. Those that take that of the sire will mature later, will grow a larger frame, and give you a bigger egg. Do not breed from your stock if they are light breeds if they have laid before they are 5½ months old, or heavies if they have laid before they are 6½ months old, if you are not satisfied with the size of egg laid.

Q. How shall I select my breeding pen?

A. Your effort must be to comprise in the individual the characters which you desire.

First of these we must place constitutional vigour, stamina, fecundity and hatchability, add to these size consistent with requirements and type. The question of size is important. Large coarse birds are poor producers and slow to mature. Under-sized birds lay small eggs, are generally of poor stamina, and we must remember that it is to the female we must look for size. The best bird for our purpose will be of medium size, say 4 lbs. as a minimum in Leghorn hens and 1 to 1½ lbs. heavier in Wyandottes, R.I. Reds and Rocks. As to egg records. Not less than 40 eggs in any 90 consecutive days from 1st October to 31st January inclusive, and not less than 180 for the twelve months. Mated to the son of a hen a similar winter record, and a yearly record of not less than 220. Do not include birds which have been persistently broody or those with very small combs.

Eggs.

Q. What is the cause of Blood-spots in Eggs?

A. When a hen is laying heavily the ovary is plentifully supplied with blood to promote the rapid formation of yolks. When a yolk sac ruptures to release a yolk, some blood may escape from a congested blood vessel in the sac. The blood passes into the oviduct with the yolk, where it becomes surrounded by albumen and incorporated in the egg. Sometimes the blood-spot is in the white or albumen. In that case it is due to a ruptured blood vessel in the oviduct.

Q. How can blood-spots be prevented?

A. There is no practical means of preventing blood-spots. If you can discover the offending hen remove her from the flock, feed sparingly and give a mild dose of Epsom salts. As a rule these eggs come from one or two individuals in the flock which are laying heavily at the time, and you cannot treat the whole flock for the sake of these two.

Q. What causes a hen to lay shell-less and thin-shelled eggs?

A. Lack of shell-forming material, such as oyster shell and lime-stone grit. If the management is bad and the birds become highly nervous, this will cause it, but generally it is due to a diet which is too stimulating for a heavy producer, or is too stimulating when pullets are producing heavily, as in March, April or May.

Q. What causes Double-yolked Eggs?

A. The feeding being of too stimulating a nature, two yolks released very quickly after each other, reach the egg membrane secreting part of the oviduct at the same time and are incorporated in one membrane.

Q. My hens lay eggs with very pale yolks. What can I do?

A. Very often this is constitutional, and you can do nothing which will help much. Sometimes it is due to the feeding. Too much wheat or cabbage will cause it. Maize, clover, fresh green food and mangolds will all help to give a good coloured yolk.

Vices.

Q. What causes Feather Plucking and how can I check it?

A. Feather Plucking is simply a vicious habit due to idleness, and is almost entirely confined to birds which are kept in close confinement. To check it the best plan is to give the birds free range if this is possible. If not, supply a sufficient depth of litter so that they may have plenty of scratching exercise, and smear the feathers with vaseline to which a little bitter aloes has been mixed.

Q. My birds eat their excreta. What is the cause and remedy?

A. The cause is an excess of indigestible matter in the food. Particles of undigested food are voided. To remedy, see there is not an excess of fibrous matter fed, such as poor oats, inferior bran or clover meal, or a bad sample of ground oats.

Q. How can I stop Egg-eating?

A. This is not an easy matter. The simplest plan is to nail a piece of dark cloth across the front of the nest, slit this up the middle, so that the bird can easily get in and out of the nest but cannot see the eggs. Throw a few china eggs near the nests.

Q. What is the cause of toe-pecking, and how can it be prevented?

A. Toe-pecking is almost entirely confined to the yellow-legged breeds, but occasionally happens with other breeds if they, by accident, injure their legs and blood is drawn. The cause is the habit of the chick of pecking at anything bright. It is always more prevalent in bright sunny springs than in dull ones. The sunlight plays on the yellow legs of the chick, one pecks another, blood is drawn, and the mischief, which often assumes serious proportions, begins. The best remedy and prevention is to bed the brooder house thickly with clean wheat straw chaff. If this is not possible, blue-wash the house, particularly the windows.

Incubation.

Q. What is the ideal temperature for an incubator room?

A. The ideal is 65 degrees Fahr. It should not exceed 85 degrees, or be lower than 40 degrees Fahr.

Q. Is it necessary to cool the eggs?

A. No. It is neither necessary nor advisable, except when the temperature of the incubator has run up. Contrary to the general opinion, a hen does not leave her nest to cool or air the eggs, but to satisfy the wants of nature. She sits most closely when they are in the greatest need of airing or cooling. There is far more oxygen in the incubator than there is under the hen. Experiments in America with large numbers of eggs demonstrated that the uncooled hatched rather better, and there was a lower mortality amongst the chicks for the first six weeks.

Q. What is the object of turning the eggs, and how often should I turn?

A. To obtain an equal distribution of heat over the whole body of the egg, the more frequent turnings the better the result. Turn four times a day.

Q. How shall I regulate the moisture?

A. Be guided by the temperature of the incubator room. Warm air carries more moisture than cold, so the lower the temperature of your room the more moisture will be necessary.

Q. Can I overdo moisture?

A. Only if the incubator is badly ventilated and the atmosphere becomes stagnant.

Q. How long and what is the best way to keep eggs for incubation?

A. It is not a question of "how long." An egg deteriorates every day it is kept. There is constant evaporation from the egg. The greater evaporation the drier do the membranes become, and the less chance is there of the intake of oxygen and the escape of the carbon dioxide. The ideal temperature in which to store an egg intended for incubation is 50 degrees Fahr. It should be stored on its side, either wrapped in newspaper or covered in bran. It should not be exposed to the air.

Q. Will the application of oil, such as olive oil or fat, or acid, such as acetic acid, improve hatchability?

A. Remember that the shell of the egg is porous, and this permits the intake of oxygen and the escape of carbon dioxide. If the pores are filled with fat or oil obviously this cannot take place. As to the acid, the action of the carbon dioxide on the shell is from within and not without.

Q. What are the most prolific causes of dead-in-shell?

A. Assuming there is nothing wrong with the eggs, the first cause is a faulty temperature. Under a sitting hen the inside temperature of the egg is 100 degrees at the end of the first 24 hours, and 101 at the end of a week. With the suspended thermometer in an incubator at 103 the inside temperature of the outside row of eggs is only 97 degrees, so that the germ starts and either perishes for want of sufficient heat, or is considerably weakened. The other chief cause is a stagnant atmosphere in the incubator during the last few days of incubation. It is most important there should be a perfect circulation of air.

Q. What are the most important factors in success in incubation?

A. First yourself, and your power of observing your own environment. You must not rely on hard and fast rules. Remember, what applies to your friend's machine in the high and dry attic will not apply equally to yours in the low damp cellar. Then the eggs. These should be from healthy, vigorous stock. Do not incubate thin-shelled, abnormally large, undersized, rough-shelled, or stale eggs. Thirdly, an equable temperature in the incubator room.

Q. Should chicks be allowed to stay in the nursery drawer of a hot-air incubator?

A. Not for any length of time. There is a difference of 20 degrees between the egg chamber and the nursery drawer, and chicks soon get chilled if they are allowed to stay in the latter for more than a few minutes, especially if they are not properly dry when they fall over.

Q. If chicks find a difficulty in getting out of the shell, what is the best thing to do?

A. Let them die in it. If you attempt to assist them you jeopardise the remainder of the hatch, and a helped-out chick is not likely to live long in any case.

Q. What is the best method of disinfecting an incubator?

A. Fumigation with formaldehyde is the best method. This should take place in a room where the temperature is not below 65 degrees Fahr., the incubator should be well moistened inside and a little water left in the bottom. Every exit should then be pasted over with brown paper, and, before finally closing, a metal vessel should be inserted, containing permanganate of potash crystals, over which double the weight of commercial formalin should be poured. The incubator should then be finally sealed up and left for three or four hours. Two ounces of formalin and one of potassium permanganate are sufficient for every five cubic feet.

Q. I bought 200 eggs for hatching. The hatch was a bad one. On examining the eggs I found that in most cases the chicks completely filled the shell and were very moist. In others, the membrane was perfectly dry and shrunken, and the chick, although perfectly formed, was very dry and small. How can this be explained?

A. In respect to those which filled the shell and were very moist, the ventilation of the incubator was at fault, the air was stagnant; this prevented the normal evaporation of moisture from the egg, and the intake of oxygen. In the second case you had been sold stale eggs. The moisture had nearly all evaporated before the eggs were incubated. The membrane, which is kept in a moist condition by the moisture within the egg, became dry and tough. In the first case you must see to the ventilation of your incubator, particularly during the last few days. In the second, get your eggs elsewhere.

Feeding.

Q. Why should I not feed chicks until 48 hours after they are hatched?

A. Because, before the chick is hatched it draws into the abdomen the remainder of the yolk which has nourished it in the embryonic stage. This supplies all the nourishment it requires for the first 48 hours. Under normal conditions the yolk is gradually absorbed and disappears on the sixth day. If you feed too early this will prevent the proper absorption of the yolk, which will decompose and cause serious digestive trouble.

Q. What is a good formula for a chick feed up to 4 weeks old?

A. The following is a very good one :—

Two parts finely kibbled cooked flaked maize.
One finely kibbled wheat.
One split groats.

This is easily digested. The following is also good :—

Fifteen parts each of finely kibbled maize and wheat.
Ten split groats.
Three canary seed.
Two hemp seed.

Q. What mash should I feed?

A. Do not feed any mash for the first six days at all, then take :—

One measure of maize meal.
One meat and bone meal.
Four Sussex ground oats.
Four fine white middlings.

One measure of this should be taken and mixed with three measures of bran, or, if there is a scarcity of green food, one measure of bran should be replaced with an equal quantity of good alfalfa meal. Dried separated milk can be used in place of the meat meal, and would give better results.

Q. When shall I alter this formula?

A. At four weeks the bran can be reduced to one measure. At eight weeks the following mash can be used :—

4 lbs. good broad bran.
4 lbs. fine white middlings.
1 lb. Sussex ground oats.
1 lb. maize meal.
1 lb. meat and bone meal or fish meal.

Q. What is a good laying mash?

A.
1 lb. bran.
1 lb. alfalfa meal.
4 lbs. fine white middlings.
1 lb. each Sussex ground oats and maize meal.
½ lb. dried yeast.
½ lb. meat and bone meal or fish meal.

As grain, feed:—

Two parts kibbled maize.
One wheat.
One oats.

When the birds are laying heavily another part maize meal can be added to this mash. This can be used as a wet or dry mash. If dry, it should be in hoppers always before the birds. The chick mashes given above are all dry mashes. If it is desired to use wet mashes, the bran should be reduced by one half and the middlings increased by a corresponding amount.

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HAS WON

A LEADING PLACE IN THE
NATIONAL TEST
WITH
Rhode Island Reds.

BLISWORTH, Northants

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THE GREEN-CLOVER MEAL PEOPLE.

Steyne Green-Clover Meal

The first genuine green-cut clover meal, (Alfalfa) made in England (1920), :: ::

Not Artificially Coloured.

It contains a good proportion of leaf and much woody fibre is removed during manufacture.

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Samples and full particulars of our various foods on application.

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FRANK SNOWDEN

Scores another huge success in the 1923-24 International Laying Tests, winning:—

1st, Gold Medal and Challenge Cup, Lancashire International (10 W. Leghorns), with heaviest weight of eggs in whole Test.

1st, Gold Medal and Two Challenge Cups, Yorkshire Trials (6 W. Wyandottes), with heaviest weight of eggs in whole Test.

1st, Gold Medal Harper-Adams' College (6 Black Leghorns).

2nd, Highest Individual White Leghorn Missouri, Individual Record 285.

3rd. Highest Pen White Leghorn Pen Missouri (5 Birds, 1,271 Eggs), winning Two Monthly Cups for highest record.

NO OTHER BREEDER of PEDIGREE LAYING STOCK can show such a record for 1924.

During 1922-23 FRANK Snowden also broke the World's Records by winning the "Daily Mail" Two-Year Test, with Two Magnificent Cups outright, and the National Championship 1st Prize Gold Medal and Cup outright.

The first three reports to hand for 1924-25 finds FRANK Snowden again occupying Fours 1sts and One 3rd position in the Championship Section.

Note the continual stream of CONSISTENT SUCCESSES in the largest and most competitive Tests only during the past seven years, taking account also of the size of egg, and there will be no further doubt as to who has the best stock to purchase.

Choice 1924 hatched Cockerels in White Leghorns, Black Leghorns, and White Wyandottes from 21s. to £5 5s. 0d. each, also a few Hens, with records of 200 to 220 for disposal. Pullets, 1924 hatched, of all three breeds.

State exact requirements when making your inquiry.

Catalogue of Matings Free.

FRANK SNOWDEN,
Raikes Hall Poultry Farm, Cowling, Keighley.
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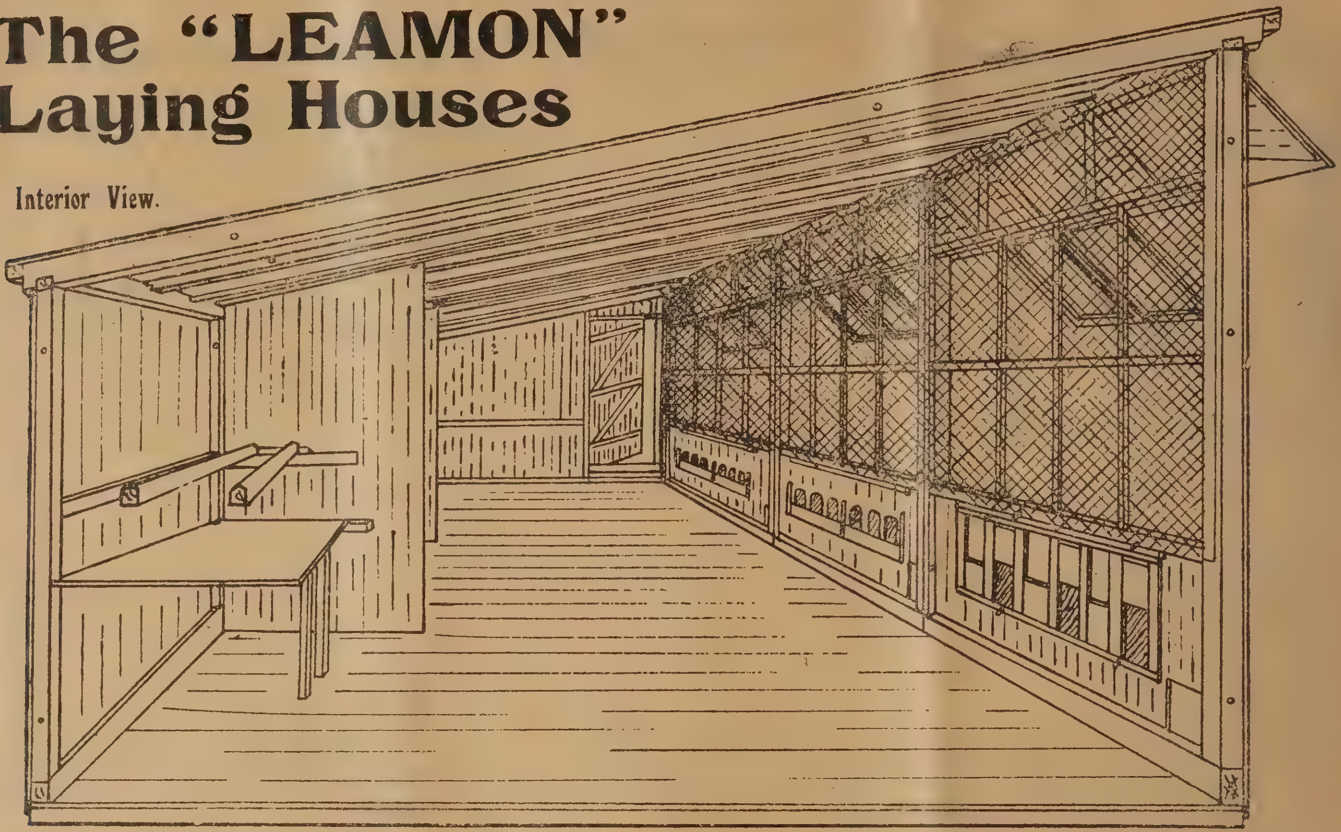
The "LEAMON" Laying Houses

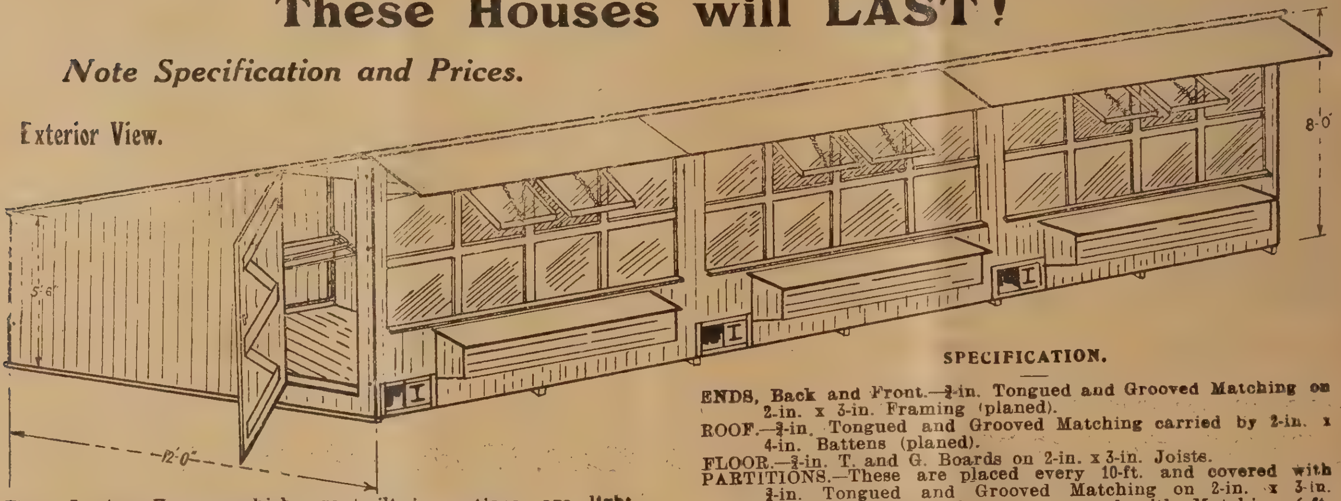
Interior View.



These Houses will LAST!

Note Specification and Prices.

Exterior View.



These Laying Houses, which are built in sections, are light and well ventilated.

They are designed with a view to giving the birds ample floor space when kept in during bad weather.

The roof is so constructed that it cannot be lifted by the strongest of gales, and the fronts are guaranteed absolutely Draught and Weatherproof.

length	height	width	capacity-birds	PRICE	Floor extra
10-ft.	8-ft.	12-ft.	30-40	£18	£6
20-ft.	"	"	60-70	£32	£10
30-ft.	"	"	90-100	£46	£14
40-ft.	"	"	120-130	£60	£18
50-ft.	"	"	150-160	£74	£22
60-ft.	"	"	180-190	£88	£26

CARRIAGE PAID TO NEAREST RAILWAY STATION.

SPECIFICATION.

ENDS, Back and Front.—¾-in. Tongued and Grooved Matching on 2-in. x 3-in. Framing (planed).

ROOF.—¾-in. Tongued and Grooved Matching carried by 2-in. x 4-in. Battens (planed).

FLOOR.—¾-in. T. and G. Boards on 2-in. x 3-in. Joists.

PARTITIONS.—These are placed every 10-ft. and covered with ¾-in. Tongued and Grooved Matching on 2-in. x 3-in. Battens (planed); they are covered with Matching 6-ft. from back.

DROPPING BOARDS.—3-ft. wide, the whole length of the House, with two perches.

NEST BOXES.—One set of six Nests is provided every 10-ft., and can be fitted with Trap Nests if required, as shown in illustration, 15/- per set extra.

ATTENDANT'S DOOR.—One each end with lock and key. Glass 21-oz.

HEN EXITS.—One every 10-ft.

The Roof, Weather Board and Nest Boxes are covered with best quality Bitumen Felt. The whole House is bolted together in 10-ft. lengths.

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You cannot get eggs if your birds are not properly fed—Build up your Poultry on

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Write for free instructive Booklet "AN INCOME FROM POULTRY."

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THE LARGEST AND BEST ONE BREED FARM

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PURE BRED WHITE LEGHORNS ONLY.

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BY INSTALLING
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It is the ONLY SYSTEM of Brooding that REALLY incorporates the Hen's MOTHERLY characteristics in its construction and care of its 500 little chicks.

PRICES according to Pattern, from £10 10s. 0d.

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OUR SIMPLICITAS Trap-Nest, in Groups of Two to Ten Nests, makes Trapping a Pleasure, as well as reliable. IT IS cheap and GOOD.
PRICES, according to Pattern, from 13s. 6d.
Write at once for our Special TRAP Book.

OUR BOOK, "EGG-IN-KUMS," shows you in detail how to build up successfully a LARGE COMMERCIAL EGG FARM. PRICE: 5s.

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For this purpose the Eggometer will be found invaluable.

The quality of the chick cannot be told from the external appearance of the egg; this will depend on other factors associated with specific gravity and fat content.

The only known device for testing the Specific Gravity of the Egg is THE EGGOMETER. The Eggometer works by showing at a glance the specific gravity of the egg, which, as every scientific poultry man knows, is not only a sure index to its hatching power, but a certain indication of the condition of the bird that laid the egg.

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If you keep 10 or 10,000 Hens

you cannot afford to be without "BUFFKING." Mr. Richard Davis, of Woodplumpton, near Preston, who hatches out thousands of chicks each year, says: "I have not found anything to equal 'BUFFKING.'"

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MILK FOR CHICKS

WRITE FOR PRICE LIST —FREE

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CARR, MACDONALD & CLEVELY, LTD.
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Gapes—perhaps the commonest of all the serious poultry diseases—is due to an internal parasite, the gape-worm. This parasite lodges *inside* the throat, but it is destroyed by IZAL, the safest and most powerful disinfectant.

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The Gape-worm eggs picked up by the fowls are spread by coughing. To prevent the spread of Gapes, spray IZAL freely about the chicken houses and runs and wash all troughs and feeding utensils with IZAL-and-water regularly.

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Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

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Reliable Eggs for Hatching Table Chickens. Indian Game X Sussex, Faverolles X Sussex, other good table crosses, 7s. 6d. dozen; £3, 100; unfertiles replaced. Carriage paid. — Simmins, M.S.P.B.A., Heathfield, Sussex.

7/6 DOZEN; 60/- 100.
TRAP-NESTED LT. SUSSEX EGGS.
DOUGLAS ANN, BERWICK, SUSSEX.

Light Sussex Eggs, Lister's strain; 6s. 6d. dozen.—Morris, Gate Farm, Battle.

Make this "more eggs" resolution

MAKE up your mind that your hens MUST work for you—not you for them. Feed them the Ful-O-Pep way; the easiest, most economical and most profitable way of poultry feeding.

No poultry food or combination is cheap if, in the production of eggs, the health of the bird is in any way impaired, or its organs damaged, and thus the constitutional vigour of future generations prejudiced.

That is why the Ful-O-Pep way is so profitable. Birds are healthier, happier and far more productive, and there is no drain upon their strength.

Ful-O-Pep Mash is finely ground, perfectly blended, and easily digested, so that the nourishment is at once available to the birds for health and eggs.

Look for the guarantee on every bag.

FUL-O-PEP TRADE MARK
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NO MIXING: NO HEATING WATER: NO TROUBLE

Write for the revised edition of the Ful-O-Pep Handy Monthly Guide which tells you how to get more eggs. This book contains a lot of other helpful information, also 12 monthly charts for you to record your eggs. It is free and postage paid.

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EGGS AND CHICKS.

FOR SALE.

WHITE LA BRESSE.

Orders now being booked. Eggs, 10s.; Day-Olds, 20s. dozen. Delivery December onwards.—Hemelryk, Old Mill House, Partridge Green.

FAWN AND WHITE RUNNERS.

Orders now being booked. Eggs, 6s.; Day-Olds, 12s. doz. Delivery January onwards. —Hemelryk, Old Mill House, Partridge Green.

MARSH DAISIES.

Orders now being booked from February onwards. Output sold for December-January. Eggs, 12s.; Day-Olds, 24s. — Hemelryk, Old Mill House, Partridge Green.

Light Sussex, Dr. Phillips' Strain of Winter Layers. Chicks for Sale January 4th, 15s. and 21s.; satisfaction guaranteed. Book early. Illustrated list free.—Barrowmore, 4, Great Barrow, Chester.

R.I.R., sisters silver medal winners, Bentley; sire's dam 283. White Wyandotte, sisters 1st Midland winners, 238-260; sire's dam 275. Light Sussex, Rothschild's. Black Leghorn, 238-260; sire's dam 266. White Leghorn, 200-250; sire's dam 273. Eggs, 7s. 6d. doz.; 50s., 100. Chicks, £1, doz.; £6, 100. — Ekins, S.P.B.A., Grange P.F., Wellingborough.

Customer for Day-old Chicks for coming season. White Leghorns, Anconas, White Wyandottes, Rhodes, Sussex; particulars.—Bisdee, De Montfort Estate, Lewes.

Hatching Eggs by return. Pedigree Rhodes, winter layers, large eggs, 7s. 6d. dozen; 27s. 6d., 50; 50s., 100. Lade, N.U.P.S., B.R.I.R. Club, Four Marks, Alton, Hants.

'Eggs and Chicks from a Moorland Hill, where stamina with other inherent qualities are prevalent in a stock of Wyandottes and Leghorns. For

PROOF

see position in Midland and Yorkshire Tests. Illustrated Catalogue now ready.—Allan Thomson, Gowanbank Pedigree Poultry Farm, Avonbridge, Stirlingshire.

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Only a few sittings per week, from selected pen; every bird having won cards at principal utility shows, including Royal, Lancs., and Lancashire Federation. Cock been in prizes six times. Go for a straight deal. Satisfaction guaranteed. Unfertiles replaced. £1 per dozen, carriage paid.—W. Eccles, Heyhouses, Lytham

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Sex -linked, hatching weekly. Pullet Chicks, 30s. dozen; Cockerel Chicks, 12s. dozen. Eggs, 8s. 6d. dozen.—Roberts, Great Bromley, Colchester.

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White Leghorns only. Hatching Eggs, January-February, 8s. a dozen; March-April, 6s.; May-June, 4s. Day-Old Chicks double. Reduction quantities. Inspection invited.

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SPRING CHICKS!

Thousands of Fertile Eggs available from large-framed Light Sussex; 50s., 100; £11 5s. 500; £21 5s., 1,000. Assorted Sussex, R.I. Red, Buff Orp., White Wyandotte, and Barred Rock Eggs; 45s., 100; £10, 500; £18 15s., 1,000. Unfertiles not replaced; 85 per cent. fertility guaranteed. Order now before the rush. Eggs ready now, or can be despatched on dates specified, if booked in time. Day-Old Chickens available from January. We have a flock of nearly 5,000 hardy, healthy birds. Send for Illustrated Catalogue, free.

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SUFFOLK POULTRY FARM,
HADLEIGH.

EGGS AND CHICKS.

FOR SALE.

Pullet Chicks 22s. doz. (Brown Leghorn-Sussex). Hatching Eggs from Trap-nested Light Sussex, Reds, Leghorns, Wyandottes, from 5s. doz.; Chicks, 12s. — Rhymes, S.P.B.A., Northway, Tewkesbury.

White Wyandottes, W.R. 53-74, mated January Cockerel, dam 248, W.R. 78. R.I.R., L2, mated L2 Tested Cock. Wyandottes, L2, mated R.I.R. Cockerel, dam 270, W.R., 74. Eggs, 7s. 6d. dozen, carriage paid. — Peake, S.P.B.A., Pedigree P.F., Hilderstone, Staffordshire.

Rhode Island Reds (Boucher), White Wyandottes (T. Barron), White Leghorns (Allen Bros. and Bostock Smith). Sittings of 15 from 7s. 6d. Chicks double. List free. —Rev. R. Pulleine, Ripley Rectory, Harrogate.

Pedigree Light Sussex (Dugdale-Slade), White Wyandottes (Williams, Faverelles-Sussex. Eggs, 7s. 6d., unfertiles replaced. Chicks double. Carriage paid.—Bardown Poultry Farm, Stonegate, Ticehurst, Sussex.

Light Sussex (Leigh-Rothschild). Sittings, large eggs, all stock trap-nested; 6s. doz.—Jones, Coldblow, Bonnington, Ashford, Kent.

Day-old Chicks, 15s. per doz., from January; L. Sussex, W.W., and R.I.R. Eggs from February. — Ramus, Halstead, Lower Road, Kenley.

Light Sussex (Leigh-Rothschild-Cooks), White Leghorns (Bostock Smith-Priest and Shaw), White Wyandottes (Birkett-Chase). Eggs, 7s. 6d. dozen.—Barritt, M.S.P.B.A., Old Clay Chapel, Tunstead, Norwich.

S.P.B.A. Laying Competition Winning Strain (Miss Maddison's), R.I.R. Eggs, from birds; magnificent colour, type; heavy winter layers of large, brown eggs; 7s. 6d. dozen; 60s., 100; unfertiles replaced. Chicks, 20s. dozen. Also Pen, mated pedigree cockerel, from Miss Maddison's Extra Special Pen I. Eggs, 15s. dozen; Chicks, 30s. — Simmins, M.S.P.B.A., Heathfield, Sussex.

CROAD LANGSHANS.

Registered Pens: Eggs, 12s. dozen; Chicks, 24s. Other pens: Eggs, 7s. 6d. dozen. — Stevenson, Banwell, Somerset.

SOUTH HANTS POULTRY FARM,

Romsey. Eggs from stock averaging over 200 eggs from large flocks without culling or selection. R.I. Red, W. Wyandotte, W. Leghorn, 60s. per 96; £25 per 1,000. Large orders, special quotation.

LIGHT SUSSEX.

Sitting of Monster Sussex and Broody Hen, 21s., delivered.—Great Fransham Poultry Farm, Fransham, Dereham.

WHAT OFFERS?

Sittings and Day-Old Chicks. Table crosses.—Sparshott, Sandford, Bristol.

LIGHT SUSSEX EGGS.

From Separate Breeding Pens, 42s. 100, 7s. 6d. dozen. — Rectory, Stoke Climsland, Callington, Cornwall.

BUFF ROCKS.

Carefully Bred from Finest Winter Laying Strains. Free range. Eggs, 7s. 6d. dozen; 50s., 100; Chicks double.—Toyne, S.P.B.A., Woodside Poultry Farm, Aby, Alford, Lincs.

CARBERY POULTRY FARM, STOCKBRIDGE, HANTS.

Invite enquiries for their Price Lists of Sitting Eggs and Day-Old Chicks, in Rhode Island Reds, White Wyandottes, Light Sussex, White Leghorns and Black Leghorns. All stock trap-nested.

EGGS AND CHICKS.

FOR SALE.

John Neville, late Lecturer and Manager, St. Dunstan's Training Farm at King's Langley, five years, has Hatching Eggs, from White Leghorn and Rhode Island Red Hens, same strains as pullets offered. Also from heavy laying, typical Aylesbury Ducks, Abbotts. Price, 12s. dozen. Now ready for despatching. Unfertiles replaced once if returned within 10 days. Reduction on quantities. — Thwaite Hill Poultry Farm, Aldborough, Norwich.

Eggs. R.I. Red, L. Sussex, W. Wyandotte; 7s. 6d. for 15; 46s., 100; no replacements. Chicks, 15s.; £5, 100. Cockerels and Pullets, a few left. — Mrs. Munday, Mersham, Kent.

Fertile Eggs from Pedigree Trap-Nested R.I. Reds (Measure's); large eggs; tested fertility; 7s. 6d. dozen; 50s. per 100. — Wadham, Beech, Alton.

Light Sussex Eggs by return; 7s. 6d. doz., carriage paid.—Leagrave Poultry Farm, Luton.

Eggs for Hatching. White Wyandottes, White Leghorns, from birds averaging 220-280; 6s. 6d. dozen; carriage paid.—Simmonds, M.S.P.B.A., The Abbey, Thorpe-le-Soker, Essex.

R.I.R. and White Leghorns, second season birds; flock 400; year's average 158; males' dams over 200; 6s. 6d. doz.; 45s., 100. Now ready or booked.— Hues, Hatton, Warwicks.

Eggs and Chicks from direct mated pens of Wyandottes and White Leghorns, from Frank Snowden's very best at

MY PRICES.

See position of this year's pullets in Midland and Yorkshire Tests. Settings from 8s. Chicks from 12s. 6d. Catalogue now ready.—Allan Thomson, Gowanbank Pedigree Poultry Farm, Avonbridge, Stirlingshire.

"DAILY MAIL" WINNERS.

The Vicar of Shifnal, Salop, M.S.P.B.A., can supply Eggs from White Wyandottes with pen average of 220 for 12 birds, headed by son of "College Queen." Also F. Snowden's Missouri Winners direct. Also Cam's, Cook's and Latham's best. From F. Snowden's pen of "Daily Mail" Winning White Leghorns direct, at 10 guineas a dozen, Day-Olds. Also Cook's and Cam's best. From Golden's best R.I.R.'s. Also Cook's. Black Leghorns: Cook's and Margerison's best. All above direct. Full catalogue on receipt of stamp. Satisfaction guaranteed. Prices from 4s. to 21s. Special prices for Incubators.

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35 GUINEAS TO BOUCHER

For Seven Rhode Island Red Cockerels, heading my pens. For five years have bought Boucher's best. Eggs, 10s. dozen; £3 10s. for 100. Chicks double.—Captain Stuart Smith, Kinoulton, Notts.

TRAP-NESTED BARRED ROCKS.

Every bird trap-nested. Sittings ready from L2 birds. Free range. 15s. dozen. — Albert Scudder, Haresland Cottage, Dawsheath, Thundersley, Essex.

BRIG.-GEN. KINCAID SMITH'S UTILITY POULTRY AND DUCK FARM.

Eggs. Pedigree Light Sussex and White Leghorn, also Khaki-Campbell Duck Eggs, from sisters of Reserve at Dairy Show, 1924. All birds trap-nested. See results this year's National Laying Test. Special Pens, 6s., 7s. 6d., 10s. 6d. per sitting. Large quantities, £2 5s. per 100; Chicks, double. Cash with order.—M. Gardiner, S.P.B.A., St. Osyth's Priory, Essex.

EGGS AND CHICKS.

FOR SALE.

Light Sussex. Orders booked now. Delivery January onwards. Eggs, 7s. 6d.; Day-olds, 15s.—Tennear, Keynsham, near Bristol.

BARNEY POULTRY FARM,
GUIST, S.O. NORFOLK.

White Wyandotte Hatching Eggs; delivery from December 1st; 7s. 6d. doz.; £3, 100.

NOW IS THE TIME

To realise that you must have a High Breeding Standard behind the Hatching Eggs to have profitable pullets next autumn. Lynwood low-priced Sittings, from trap-nested White Wyandottes and White Leghorns, guarantee your ultimate satisfaction. — Rawlinson, Lynwood P.F., Horeham Road, Sussex.

FRED WEEKS, S.P.B.A.,

Offers Eggs for hatching. White Leghorns (Tom Barron), from birds with records of 233 to 292, mated to cockerels from 248-egg hen. R.I.R. (Golden-Crowley), from birds with records of 200 to 278, mated to cockerel from 240-egg hen. Price, 12s. 6d. per dozen. Chicks (to order only), 30s. per dozen. Other pens, sisters and daughters of above, mated to full brothers of above cockerels; price 7s. 6d. per dozen. Chicks (to order only), 17s. 6d. per dozen. I guarantee 90 per cent. fertility, and every egg 2ozs.—The Haven, South Woodham, Essex.

LONGWOOD POULTRY FARM.

Chicks 15s. and 20s., Sittings 7s. 6d. and 10s. Rhode Island Reds, White Wyandottes, White Leghorns, Light Sussex, Black Leghorns, Anconas, and Buff Orpington Ducks.

ALDRIDGE ROAD, WALSALL.

R. S. KEEP, S.P.B.A.

EAST BUDLEIGH, DEVON.

WHITE WYANDOTTES, W. LEGHORNS, RHODE ISLAND REDS, BUFF ROCKS.

HATCHING EGGS.
DAY-OLD CHICKS.
CUSTOM HATCHING.
ALL BEST UTILITY TRAP-NESTED STOCK.
FULL PARTICULARS ON APPLICATION.

BOOK YOUR EGGS AND DAY-OLD CHICKS NOW.

Trap-nested Stock. Wyandottes, Rhode Island Reds, Sussex, Leghorns, Anconas. Eggs from 7s. 6d. per doz. Chicks, £1.—Ford Lane Poultry Farm, Northenden, Cheshire.

DR. BALDWIN'S WHITE WYANDOTTES.

Eggs from this famous Large-Egg Strain, 7s. 6d. per 15, or 45s. per 100. Fertility 90 per cent. Now booking for January and onwards.—Brooksbank, Hedon, East Yorks.

EGGS AND CHICKS.

Light Sussex. Records up to 243. White Wyandottes. Records up to 247. R.I.R. x Light Sussex. Eggs, 7s. 6d. upwards Chicks double. Now booking orders. Particulars on application.—Fraser, Downfield, Brockweir, Gloucestershire.

SUSSEX HATCHING EGGS.

Light, Red, Speckled, Brown Sussex. Eggs from big, well-marked typical hens, specially selected for laying qualities; 21s., 10s. 6d., 7s. 6d. doz. Assorted per 100, for incubators, 45s.; for spring chicken trade. Exhibition Pens, 21s.-42s. dozen. Winner at leading shows since 1905.—H. S. Hodges, Knowle Poultry Farm, Heathfield, Sussex.

EGGS AND CHICKS.

FOR SALE.

WHITE AND BLACK LEGHORNS.

Speckled Sussex and Khaki-Campbells. Sittings and Chicks, from pedigree, trap-nested L2 birds. Prices and particulars free from N. P. Doyle, M.S.P.B.A., Wolmer Poultry Farm, Marlow Common, Bucks.

ALEX. J. BELL, M.S.P.B.A., U.D.C.,

Longwick, Princes Risborough, Bucks, is now booking Sittings and Chicks from his Pedigree Pens of R.I. Reds, White Leghorns, Indian Runners, and Khaki-Campbells. List free. Satisfaction insisted on.

LANSLEY'S BLACK LEGHORNS.

1st position, Section 10, Lancs. U.P.S., and 1st position, Section 5, Harper-Adams' Laying Tests, 1924-25. This follows Bronze Medal, Seven Certificates, Harper-Adams, last three years. Cockerels from 21s. Pedigrees guaranteed. Records to 444 in two years. W. Leghorns and Wyandottes to 251 in 12 months.—W. A. Lansley, Tilstock, Whitchurch, Salop.

PURE-BRED BARNEVELDERS

Sittings of Eggs. Immediate delivery, 15s. dozen, from birds which won 1st, Shrewsbury; 1st, Medal, Belper, etc. — Mrs. Norman Parish (Barnevelder Club), M.S.P.B.A., "Avona," Bramhall, Cheshire. Tel.: Bramhall 58.

GOOD STOCK AT REASONABLE PRICES.

White Leghorns, Padman's strain; carefully selected, bred and reared by us, for healthy heavy egg production. Breeding Pens, headed by cockerels from 240-285-egg hens, and free range reared; average fertility previously 97 per cent. We have always been complimented on the size and quality of our Hatching Eggs, and we shall endeavour to maintain this reputation. Hatching Eggs, January and February, 7s. per doz.; 42s. per 100. March and onwards, 5s. per doz.; 30s. per 100. Chicks, 12s. per doz.; 90s. per 100. Special quotations for thousands. Discount 10 per cent. to old clients.—A. Colombe, F.Z.S., S.P.B.A., Newlands Egg Farm, Kidmore End, Oxfordshire.

C. N. GOODE,

Bletsoe, near Bedford, Breeder Exhibition Utility White Wyandottes and Light Sussex. The strain that possesses stamina, type and size of egg, combined with high production. They please the eye and fill the egg basket, and are in front rank at Utility Shows. There is 30 years' experience behind this strain. It is at your service. Stock at moderate prices. Satisfaction guaranteed. Eggs for Hatching.

EGGS AND CHICKS.

Leghorns, Black or White. Order now for January delivery. Eggs, 10s. 6d.; Day-Olds, 21s. dozen.—Tannear, Keynsham, near Bristol.

SPRING CHICKENS.

Be in time and hatch now. Fertile Eggs ready now. Light Sussex and W. Wyandottes; 6s. 6d. and 5s. 6d. doz. or 15 respectively. Chicks at 13s. dozen if booked month previous; delivery from mid-Jan.—F. W. Hitchcock, S.P.B.A., The Chestnuts, Rattlesden, Suffolk.

MISS KEITH, TANGLEY, ANDOVER.

Pedigree Trap-Nested Stock. Rhode Island Reds, Crowley-Boucher Gold Medal strain. Eggs now being booked, 6s. doz., 40s., 100; 90 per cent. guaranteed. White Leghorns, T. Barron-Padman. Eggs, 40s., 100, Jan.-March. 30s., 100, April and May; 90 per cent. guaranteed. Particulars on application. 1,200 Laying stock. Original Testimonials of Hatchability and Fertility can be seen. Inspection Invited. Pupils taken.

EGGS AND CHICKS.

FOR SALE.

DAY-OLD PULLETS.

Brown Leghorn, Light Sussex. Day-old Pullets and Cockerels. Pullets, 27s. 6d.; Cockerels, 12s. 6d. per dozen. Hatching weekly.—Brooksbank, Hedon, East Yorks.

PEDIGREE WHITE LA BRESSE.

Only breed kept; trap-nested. — Gerald Fox, Hebron, Colnbrook, Bucks.

BOUCHER'S DIRECT.

Rhode Island Red. Eggs, 15s. for 15 eggs; no replacements. From pen containing all L2 birds, headed by Cockerel whose dam laid 90 eggs, 2¼oz., in three winter months. Now booking. — Brooksbank, Hedon, East Yorks.

PULLETS.

FOR SALE.

Ten White Wyandotte, Twelve White Leghorn Pullets; point of laying or laying; 12s. 6d. each. Twenty Indian Runner Ducks. —Further particulars, apply, Murtland, Carlton, Wakefield.

Seven Pedigree Croad Langshan Pullets, laying. Two Cockerels; 15s. each; less taking lot; late January hatched.—Darby, Pinehill, Worle, Weston-Super-Mare.

100 White Leghorn, March-April, 1924, hatched Pullets, Tom Newman's strain; healthy birds; 10s. 6d. each. Reduction on quantity.—G. B. Young, Kilmington, Devon.

R.I.R. 1924 Pullets and a few White Leghorns. John Neville, late Lecturer and Manager, St. Dunstan's Training Farm, five years, has 60 of above from L2 hens; individual records 180-247; never had any disease. Leghorns, Holdaway - Johnson; Rhodes, Measures-Boucher; March, April, May hatching; mostly laying; 10s. 6d., 12s. 6d., and 15s. each. Age and quality. Approval willingly.—Thwaite Hill Poultry Farm, Aldborough, Norwich.

Twelve White Wyandottes, Twelve Rhodes (April hatched); 10s. 6d. each. 50 Light Sussex, seven months old; 9s. each; dams all over 220. Large eggs pullet year. — Reverend Goodwin-Courtman, Awre, Gloucestershire.

1924 Buff Orpingtons, Salmon Faverolles, Houdans, Light Sussex, Brown Leghorns. Pullets, 7s. and 10s.; Cockerels, 10s. and 12s. Best laying strains.—Cotton, Penley, Ellesmere.

1924 Light Sussex, Rhode Island Red, Buff Rock Pullets; 12s. White Leghorn-Wyandotte cross Pullets; 7s. 6d. All laying splendidly; carriage paid on three.—W. Kelly, 6, Westcott Road, Anfield, Liverpool.

LAYING PULLETS, 10s. 6d.

Few splendid White Leghorns; well-grown, healthy, good type; unrelated cockerel to match; off 240-egg hens; 12s. 6d. Approval. Carriage paid three or more. Reduction on quantity.—F. W. Hitchcock, S.P.B.A., The Chestnuts, Rattlesden, Suffolk.

MAJOR ROBERT LETHBRIDGE, BROOMHILL, TIVERTON,

Offers splendid free range January, February, March R.I. Red Laying Pullets, from highest class large egg trap-nested hens; records 200-285; from £1 each. Particulars on request. Vide under Cockerels.

AUSTRALORPS.

March hatched Pullets, Judson-Drewitt strain; 12s. — Whitehead, North Cheriton Manor, Somerset.

PULLETS.

FOR SALE.

Pullets. R.I. Reds, White Wyandottes, from highly fecund, trap-nested stock; from 10s. 6d. Stock Cockerels; fine specimens, from 15s., carriage paid. — Tebble. Needham, Harleston, Norfolk.

COCKS AND COCKERELS.

FOR SALE.

White Bresse Cockerels, closely related to sire of Wilts Test Gold Medal Pen. B.O. Drakes; few from dam of 1923 Olympia Special, which laid 241 eggs third year; from 21s.—Lieut.-Col. Weston, Steeple Ashton, Trowbridge, Wilts.

Minorcas. Hobson's Utility Minorcas. Strong Cockerels and Laying Pullets; 21s. each.—Hobson, Wrentnall House, Pulverbatch, Shropshire.

Tilley and Webb's Special Pen Leghorn Cockerels; dams 256-276; sire's dam 320 2¼oz. eggs; hatched February, 21s. each.—Roberts, Great Bromley, Colchester.

Australorp Cockerels, Christie's strain, hatched March and April, 1924; price from 10s. 6d. to £1.—Peters, Hook Norton, Banbury.

A few Pure-Bred Wyandottes and Rhode Island Cockerels for Sale, 15s. each, carriage paid.—G. Y. Fort, Alderbury House, near Salisbury.

Gold Medal for W. Wyandottes, "Wilts Laying Test," 1924. February hatched W. Wyandotte Cockerels, from hens 200 to 230; all 2¼ oz. Sire from Cam's 291-egg hen from College Queen. 25s. each, carriage paid.—Mrs. Knight, Odstock, Salisbury.

Bronze Medal W. Leghorns and Silver Cup, 3rd in all classes in "National Egg-Laying Test," 1924, also Silver Medal "Wilts Laying Test," 1924, for W. Leghorns. February hatched W. Leghorn Cockerels, from hens 230 to 250, 2 oz. to 2¼ oz. Sire from Cam's 291-egg hen.—Mrs. Knight, Odstock, Salisbury.

Silver Medal for L. Sussex, "Wilts Laying Test," 1924. February hatched L. Sussex Cockerels, from hens 190 to 220, all 2¼ oz. Sire, Eden's direct. 25s. each, carriage paid.—Mrs. Knight, Odstock, Salisbury.

BLACK BRESSE COCKERELS.

February hatched from 200 to 225 dams. £1.—Souchon, Turners Hill, Sussex.

CARBERY POULTRY FARM, STOCKBRIDGE, HANTS.

Offers Stock Cockerels. Rhode Island Reds, White Leghorns and Black Leghorns; 10s. to 25s. each, according to dam's records. All with records 233 to 280. Full particulars on application.

RHODE ISLAND REDS.

Eggs from Pen I. (registered), Boucher direct cockerel; dam's record 279; W.R., 84; mated pure Boucher hens; records 206-270; W.R., 62-74. Pen II. (registered), Boucher direct cockerel; dam's record 268; W.R., 73. Mated Kitchen and Boucher-Measure hens; records 211-273; W.R., 40-60. Price 20s. doz. Eggs individually marked.—Colonel Clark, Bransgore, Christchurch.

SIRE BOSTOCK SMITH (PEN 1).

R.I.R. S.c. Cockerels, sire's dam's record 270; hens' records, 225-260. February, March, and April hatched; deep rich red; 12s. 6d., 15s., 17s. 6d. each, carriage paid. Approval. —R. B. Dobson, Stretfield P. Farm, Bradwell, Sheffield.

COCKS AND COCKERELS.

FOR SALE.

R.I.R. Cockerels; dam's records 269; sisters silver medal winners, 1923, Bentley; sire's dam 283. Black Leghorns; dams 263; sires 266; 15s. each. — Ekins, S.P.B.A., Grange P.F., Wellingborough.

Black Leghorns. A few Cockerels, 10s. 6d., and 1923 Pullets, 7s. 6d. If six or nine taken; 10s. 6d. singly.—Innes, West Monkton, Taunton.

Exchequer Leghorns. Cockerels, 15s.; Pullets, 15s.; brothers 3rd Dairy, 3rd. Yeovil, 2nd Barnstaple. — Innes, Brean Cottage, West Monkton, Taunton.

Rhode Island Whites. Cock, Cockerels, Hens, Pullets for sale, bred from pen headed by winners of many prizes, including 1st and silver medal, Bath and West; 1st, Frome; 2nd, Barnstaple; reserve, Dairy and Olympia, 1923, etc. Eggs for hatching shortly, £1 1s. sitting.—Innes, West Monkton, Taunton.

White Leghorns,pedigree toe-punched Cockerels, from 277-egg sire, mated to hens with winter records of 44 to 59; £1 1s. and £2 2s., carriage paid.—L. E. Nicholls, Woodview Poultry Farm, Sheepridge, Huddersfield.

High-Class Utility Cockerels. White Leghorns, Anconas, Light Sussex; 10s., 12s. Carriage paid. — Wilson Poultry Farm, Barnoldswick.

BLACK AND BROWN LEGHORN LEGHORNS.

Black Leghorn Cockerels, Feb. hatched, Arthur White and Frank Snowden strain; dam's record 225 and over. Brown Leghorn Cockerels, Jan. hatched; Street-Porter strain; dam's record 225 and over; record for Blacks officially tested, Harper-Adams; £1 1s. each, carriage paid. — Gilmor Egg Farm, Higher Heath, Whitchurch, Salop.

AUSTRALORPS.

March hatched Cockerels; Judson-Drewitt strain; 15s. and £1. — Whitehead, North Cheriton Manor, Somerset.

BROWN LEGHORN COCKERELS.

From individual high record hens. Particulars on application. Eggs now being booked for next season. Thompson, Hollow Tree, Tardebigge, Bromsgrove.

ANCONAS, DARRACOTT'S PEN 3.

Cockerels from above, from 12s. 6d. — E. Savory, M.S.P.B.A., Emberton House, Olney, Bucks.

PEDIGREE COCKERELS.

White Wyandotte, White Leghorns, Buff Orpingtons, Rhodes; from trap-nested hens and high record sires; pedigree to 270; 12s. 6d. each. Satisfaction guaranteed.—Wheatley, S.P.B.A., Barnwood, Gloucester.

RODWELL'S EXTRA SPECIAL.

White Leghorn Cock, 1923 (Dubbed); 15s. Also Four Cockerels and Ten Pullets (April), from T. Barron's hens, with above cock; 12s. 6d. each; carriage paid. Approval.—W. Woodhouse, Marsh Lane, near Sheffield.

FRANK SNOWDEN'S PEN 1.

January-hatched White Wyandotte Cockerels, direct from above; 18s. 6d. to 24s. February and March birds off Darracott hen, which laid 269 2oz. eggs in pullet year, by Barron cock, off 266-egg hen; 17s. 6d. to 21s. Off 236-egg hen, 20s. Splendid birds from 14s. 6d. All carriage paid. Approval willingly.

PAUL G. 'ESPINASSE, M.S.P.B.A.,
South Weston Rectory, Wallingford.

GOLDEN'S R.I.R. DIRECT.

Splendid Cockerels, from Golden's Special Pens; £1 each.—Baillie Mills, Oakleigh Poultry Farm, Pembury, Kent.

COCKS AND COCKERELS.

FOR SALE.

Pure American White Wyandottes; high record utility; imported myself in 1922-1923. Large eggs and good big birds. Very useful for crossing with English strains. January Cockerels, £1; March, 15s. Few Hens, 10s.; Pullets, 15s.-£1 each. Full pedigree supplied.—Harry Whiteoak, The Grange, Kildwicke, Keighley.

Black Minorcas. Cockerels, April, 1924; Pyne direct; 12s. 6d. each. — Miss Hirst, Moorgate Villa, Retford, Notts.

Ten February White Wyandotte Cockerels; Three R.I.R. February Cockerels; Two February Black Leghorn Cockerels; Two Feb. White Leghorn Cockerels surplus to requirements. These are from my best birds sent on approval, carriage paid; 15s. each.—Webster ,"Birtle Dene," Rossall Road, Ansdell.

White Wyandotte Cockerels. Early hatched utility birds, with full pedigrees; bred for stamina, type and large eggs, from high record continuously trap-nested dams. Cockerels of my breed are giving satisfaction all over the British Isles. List free.—Mrs. Burgess, S.P.B.A., Woodside, Tenterden, Kent.

Two White Wyandotte 1923 Cocks for Sale, from Frank Snowden Special Pen I. as eggs; 25s. each; fine birds. Also Two splendid 1923 Black Leghorn Cocks; dam's record 240; 20s. each.—Mrs. Athol Stuart, Boxmoor, Herts.

White Leghorn Cockerels (March); Frank Snowden's Extra Special Pen 4; sire's dam 291-egg hen, "Missouri Princess"; 25s. each. One White Wyandotte, Extra Special Pen 2.—Mrs. Arnott, M.S.P.B.A., Brampton, Cumberland.

Black, White Leghorns, Stock Cockerels, Frank Snowden's strain direct; best pen, all good, healthy, vigorous birds; early April hatched; 20s. upwards.—George S. Shaw, Dane-in-Shaw Mill, Congleton.

Magnificent Vigorous Wyandotte Cockerels; direct as eggs, Frank Snowden's Pen 1; hatched March 8th; 15s. each. Approval willingly. — Wilfrid Hawkes, M.S.P.B.A., Blackminster, Evesham.

Miss Kitchen's Rhode I. Reds, the great laying test winners. Cocks and Cockerels, sired by £10 10s. and £3 3s. cocks, from Miss Kitchen; price £1 each. Also Golden's Pen 1 stock. Cockerels, 15s. each. Copy of pedigree with each bird. Few Hens at 10s. each.—Harry Whiteoak, The Grange, Kildwicke, Keighley.

Magnificent Dark March Rhode Island Red Cockerels; wonderful winter laying blood; rich brown eggs; from guaranteed pure Golden's Pen direct; sire's dam (non-broody); 150 eggs, six winter months; 15s. each. Approval willingly.—Wilfrid Hawkes, S.P.B.A., Blackminster, Evesham.

A few Croad Langshan Cockerels; very fine March hatched; brothers to pullets, lead 1st 9 months at National, 1923-4; 25s. each.—Goldsmid, Brill.

Magnificent April White Leghorn Cockerels,from eggs direct Frank Snowden's Pen 6 (dams, 240/250, sire son 279-egg hen); 12s. 6d. each. Approval willingly. — Wilfrid Hawkes, S.P.B.A., Blackminster, Evesham.

REV. SEYMOUR SHAW,

Warcop Vicarage, Westmoreland, offers Highest Class Stock Cockerels. White Leghorns, White Wyandottes, and R.I.R.; with breeding and stamina, 21s. each.

BOUCHER'S DIRECT.

Rhode Island Red Cockerels, March hatched, from trap-nested parents; pen headed by cockerel, whose dam's winter record of 90 takes some whacking. Early application advised; 21s. each, approval.—Brooksbank, S.P.B.A., Hedon, East Yorks.

COCKS AND COCKERELS.

FOR SALE.

REGINALD SCOTT, S.P.B.A.

Leigh-Rothschild-Cook Slade Light Sussex Cockerels; splendid birds for stock; 20s. to 35s. Two excellent W.L. (Cam) Cocks; reliable Breeding Hens and Pullets in L.S. and W.L. Approval against cash. — Greybarn Poultry Farm, Ortonwaterville, Peterborough.

BLACK LEGHORN COCKERELS.

February hatched, individually bred from 281-egg dam; 21s. each, carriage paid. —Ginchy Pedigree Poultry Farm, Corhampton Road, Pokesdown, Hants.

WHITE LEGHORN COCKERELS.

January hatched, Bostock Smith-Metcalf strain; only few Brown Leghorns left. — Chittenden, Lingfield.

NATIONAL TEST, 1922-3. SILVER MEDAL WINNERS.

Exceptionally fine individually-bred pedigree White Leghorn Cockerels, bred from my pen 26 as above; 100 Pens White Leghorns competed, and won 2nd position in whole test for size and numbers of eggs, against 313 pens of all breeds, losing highest honours by eleven eggs. Also from life recorded dams, with high records, including actual parents to Pen 26. January to April hatched, 15s. to 63s. each. April Pullets, 15s. to 30s. Carriage paid. Approval. Few Black Leghorn Cockerels from full sisters to Supreme Winners, Carnforth Laying Test, 1922-3. — Rowland Cooke, N.U.P.S., S.P.B.A., Kirbymoorside, York.

INDIVIDUALLY BRED COCKERELS.

WHITE WYANDOTTES AND WHITE LEGHORNS.

National Laying Test, my Wyandottes averaged 226 per bird, finishing 15th position (winter months 2nd), Leghorns finished ninth, Harper-Adams' Test Wyandottes finished 15th. Cockerels bred from hens with guaranteed records of 220 to 310. Excellent colour, type and size. On approval, with full pedigree. Price from 21s. A few individually-bred Cocks at 21s.

G. KEITH SIMMONS,
Fairview Poultry Farm, Hembury Fort,
Honiton, Devon.

11 ENTRIES—11 AWARDS

in Open Tests. Three Gold, Three Silver, Three Bronze, Lincolnshire Agricultural Bowl, 2nd Class Certificate. Twenty years' breeder of Trap-nested R.I. Reds. Cockerels from £1; type and colour. Eggs, Chicks, booked.

J. K. PEACH,
DERWENT P.F., ALVASTON, DERBY.

PHILIP CLAPHAM.

The performances of my White Wyandottes in public trials show that selection for egg size and winter production is not pursued in vain. A few splendid Cockerels left; individual or pen pedigrees; from 21s.—Sheriffs' Farm, Lyonshall, Herefordshire.

MRS. E. UPJOHN.

Stapleford, Cambs.

Pedigree Black Leghorn Cockerels. Sittings booked. See Registered Pens, 1925 Register. Ditto Wyandottes. Also Runner Drakes and Ducks.

DR. BALDWIN'S DIRECT.

White Wyandotte Cockerels, March hatched, on free range; bred from birds of tested parents and proved L2; 21s. each, carriage paid. Mention Station.—Brooksbank, S.P.B.A., Hedon, East Yorks.

COCKS AND COCKERELS.

FOR SALE.

MAJOR ROBERT LETHBRIDGE,
BROOMHILL, TIVERTON,

offers vigorous R.I. Red Early Cockerels, individually marked to large-egg dams, records 285, 284, 280, 260, 242, etc., from 30s. Recent Utility Show awards include Poultry Club, Utility Challenge Cup, Tiverton, 1st Prize Open, Yeovil, etc., with different birds.

GOLD AND SILVER

Medal Winners. White Leghorn Cockerels, bred from above, brothers to my pullets, 2nd and 9th Keighley Test; from 15s. Also R.I.R. (Golden direct) and Black Leghorn. —S. Lawton, Nickhouse, Mirfield.

HENS.

FOR SALE.

MISS HASLER, S.P.B.A.,
FRINTON-ON-SEA,

Offers good R.I.R. Hens (1923); individual records up to 200 and over; from 12s. 6d. Can mate to high record Cockerels if desired.

TRAP-NESTED WHITE LEGHORN

1923 Hens, Frank Snowden direct; record 180 to 225; 10s. 1922 Hens, record 180 to 225, 6s.—Souchon, Turners Hill, Sussex.

DUCKS AND DRAKES.

FOR SALE.

Fawn and White Indian Runners; several very fine Drakes, from 350-egg duck; £2 to £3. Approval.—Macdonald, Harfield, Hambledon, Hants.

Erect March White Runner Drakes, Harrison-Bell White Egg Strain; individually bred; dam's records 297 and 301 eggs; 12s. 6d. each; no better blood obtainable. Approval willingly. — Wilfrid Hawkes, M.S.P.B.A., Blackminster, Evesham.

1924 Abacot Ranger Drakes (Harold Paine direct); 21s. each. 1923 Buff Orpington Drake, bred by Captain Heseltine, from duck C4 in Pen 1, Bentley, 1921-2; 25s.—J. C. Roe, Deerleap Farm, Knockholt, Kent.

Massive Aylesbury Drake and Four 1924 Ducks; near laying; 42s.—Mugeli, Disley.

Magnificent Vigorous Khaki - Campbell Drakes (March); perfect specimens, from 295 and 291 egg ducks; individually bred; 15s. each. Few Unrelated 1924 Ducks; laying; 12s. 6d. each. Approval. Thompson-Pettipher's strain. — Wilfrid Hawkes, S.P.B.A., Blackminster, Evesham.

Khaki-Campbell Drakes, 1924; Pettipher, Leslie-Thomson; beauties; 7s. 6d.—Stoddart, Perwinnes, Dyce, Aberdeenshire.

PRIZE-WINNING

Aylesbury Ducks, Barnevelders; White Wyandottes, from 12s. 6d.—Mrs. Landon, S.P.B.A., Bullingham, Hereford.

LUCAS POULTRY FARM

have obtained with their Pen No. 55, 1st position in Buff Orpington Ducks at the Wye College Test, 1923-4. This pen beat all Indian Runners in the large Flock Test. They now offer stock closely related to above from 12s. 6d.—All communications to Capt. J. K. Lipscomb, St. Antony's, Swanley, Kent.

DUCKS AND DRAKES.

FOR SALE.

White Runners, Paine's. 2 Drakes and 10 Ducks, hatched May 12th, laying, 12s. 6d. each, or exchange good laying pullets.—Hernaman, Burgess Hill, Sussex.

1924 Fawn and White Runners. Drakes from pen averaging 224 eggs in year, mated to drake whose dam laid 280 eggs in 282 days; £1 1s. and 30s. Ducks just on laying from same pen, 12s. 6d.; five for £3. Breeding Pen, 6 Ducks and Unrelated Drake, £4 10s. All carriage paid. Hon. Mrs. Hornsby, Nayland, Colchester.

Pure-Bred Aylesbury and Khaki-Campbell Drakes for Sale.—Mrs. Tindal, Moy, Forres.

WYE COLLEGE TEST, 1923-24.

Pen of Five Buff Orpington Ducks, winners of Silver Cup in small section; also winners of other prizes; bred from Capt. Heseltine's heavy laying strain; price on application. — Miles, Allington, Ropley, Hants.

KHAKI-CAMPBELLS.

Laying Test results to date:—1st and Gold Medal, Gloucestershire, 1922-23; 3rd and Bronze Medal, Gloucestershire, 1923-24 (one death); 6th, Large Flock Section, National, 1923-24. Pen score 1,050 first-grade eggs. Utility Show Awards, 1924:—1st, Prestbury; 1st, Special, and 2nd, Bristol. Stock Drakes for sale.—Gerald Simmons, Burleigh Poultry Farm, Brimscombe, Glos.

GEESE.

FOR SALE.

Wanted, Pure Massive Embden Gander for Stock. — Bantoft, "Roseferns," Westfield, Woking.

BREEDING PENS.

FOR SALE.

1923 White Leghorn Hens. Every bird trap-nested and with a record of 180 to 220. From 95s. per dozen, or 10 hens and early hatched Cockerel, 90s. Also a few White Wyandotte and White Leghorn Cockerels, from dam's records of 242 to 298, at 15s. and 21s. Full particulars on application.—G. B. Tootall, Thorncliffe Poultry Farm, Barrow-in-Furness.

Grand Pen Australorps, 1924 Cockerel; four Pullets for 60s.; other Cockerels from 15s.—Mrs. Munday, Mersham, Kent.

1923 Buff Rock Hens. Every bird trap-nested; records 180 to 200. Six Hens and early-hatched Cockerels, £4. Full particulars on application.—Wm. Farrar, Brookroyd, Batley, Yorks.

Messrs. Millington and Bircumshaw can spare a few specially selected Utility Breeding Pens (Six Pullets and Unrelated Cockerel) of Buff Rocks and R.I.R.'s at £5 5s. Also Pullets of above breeds from 10s. 6d. The above are of their noted winning strain, and are A1 in both type and colour.—Moorgreen Poultry Farm, Newthorpe, Notts.

RABBITS.

FOR SALE.

Lester Spurgeon, Wistlers Wood, Woldingham, Surrey, breeder, pedigree giant Blue Beverens. Youngsters for Sale.

The Lady Rachel Byng, High Sandhoe, Angora Rabbit Farm, Hexham. White Angoras for Sale. Vacancy, Day Pupil.

RABBITS.

FOR SALE.

Exhibition Strain, Dutch. Good breeding stock from 10s. pair.—Tilling, Burton, Bradstock, Bridport.

CHINCHILLAS, ARGENTES DE CHAMPAGNE, BLUE BEVERENS, HAVANAS, SITKAS, AND TANS.

The most profitable breeds for fur and food; also beautiful White Angoras, for wool production. Breeding and Exhibition Stock always for sale at prices consistent with quality. All are bred on scientific lines, and are closely related to my recent winners at the Crystal Palace, Leicester, Blaydon, Redruth, Peterborough, Newbury, Maidenhead, Dover, Horsham, and many others.

OVER 100 AWARDS THIS YEAR,

including various Specials, in keenest competition. Colour and texture are two strong features in the "Heaselands'" Stud. If your present stock fails in either of these all-important properties, introduce one of my young bucks, or send your does to be mated to one of my winning bucks, particulars of which will be sent on application.

E. BOSTOCK SMITH,
"Heaselands," Barham, Canterbury.

DOGS.

FOR SALE.

Sealyham Bitch; excellent pedigree; keen ratter; in whelp to Senlac Newman Noggs. Three guineas.—Morris, Gate Farm, Battle.

Puppies, Black Flat - Coat Retrievers, born June 8th; fine pedigree; sire, "Towerwood Vigour," full champion; dam selling, "Sheila" (K.C. 46,768). Also Pure - bred Bitch, same breed; one year, partly broken. No reasonable offer refused. —Douglass, Selling, near Faversham.

APPLIANCES.

FOR SALE.

"Glevum" Mammoth and Small Incubators, special terms to members S.P.B.A. —Harmer, Hadlowdown, Sussex.

Only one 500-chick Hearson Brooder Stove left. Good condition. To clear, £3 10s.; carriage forward. — Whittingslow, Leabank Avenue, Kidderminster.

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THERE'S A REASON FOR IT.
It is no wonder that you wonder how
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"NEW WONDER" BROODER
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Poultry Fattening Appliances. — Neve Bros., Heathfield, Sussex. As quoted 19th November.

Galvanised Steel Corn Bins, 1cwt., 8s.; 2cwt., 13s.; 3cwt., 19s.; 4cwt., 24s.; 6cwt., 31s. 6d.; 8cwt., 37s. 6d. Hinge lids. Carriage paid.—Hudson, Sheet Metal Works, Patricroft, Lancs.

100-Egg Tamlin Incubator; guaranteed perfect running order; £5. Foster Mother, £3. Taking lot, £7 10s., carriage paid.—Darby, Pinehill, Worle, Weston-Super-Mare.

7ft. Broody Coops, 12s. 6d.; Sitting Boxes, 7s.; Hen Coops, 7s. 9d.; Duck Houses, 33s. 6d.; Glazed Chick Dishes, 3s. 6d. dozen; Hampers, 3s. 6d.; Pig Houses, 32s.; Garden Frames, 5s.; Poultry Houses, 27s. 6d. Illustrated list. — Berwickmere Appliance Agency, Berwick, Sussex.

Two 500 Chick Glevum Oil-Burning Hovers; only used once; £4 each, f.o.r. — Gordon, Churchill, Bristol.

One 390 Gloucester Incubator (1922), good as new, with new nursery tray, felts, and canvases; £10. Free on rail. Free delivery within ten miles radius.—Severn Storr, Winnaway Farm, Harwell, Steventon, Berks.

Hearson 240-egg, £9; 10 Tamlin, 100, £4; three Pioneer, 75-chick, Hovers, only used one season, 25s. each. Every machine complete and in perfect working order; approval.—Harmer, Hadlowdown, Sussex.

Glevum and Gloucester Incubators and Brooders, 10 per cent. off makers' prices. Particulars—James Massey, 51, Chip Hill Road, Bolton.

INCUBATORS, BROODERS, AND FOSTER MOTHERS.

Three Tamlin 100-egg Incubators, £4 each. Two Buckeye, only used one season, 600-egg £23, 350-egg £15. Two Hearson 100-chick Foster Mothers and one Glevum 400-chick Brooder, £3 each. Four Sonimor In-Loco. Parentis Brooders, complete, £5 each. Purley Brooder of four hovers, complete, £40, or near offer. — Souchon, Turners Hill, Sussex.

INCUBATOR AND BROODER FITTINGS.

Every fitting stocked. Make your own machines; complete sets or accessories supplied; lists stamp.—"Myers," Manufacturers, Riseholme Street, Victoria Park, London, E.9.

GALVANISED GOODS.

Water Pans, 2s. 3d., 2s. 9d., 4s., 5s. 6d. Square Founts, strongest made, 1, 2 and 3 gallons, 4s. 6d., 5s. 3d., 6s. 9d. Paraffin Storage Tanks, 10 to 50 gallons, 15s. to 34s. Water Tanks, 34 to 200 gallons ,14s. 6d. to 72s. Mixing Troughs for Wet Mash, 37s. and 55s. Meal Bins, 3 cwt. to 4½ cwt., 36s., 40s., 48s. All carriage paid. Reductions for quantities. These are superior and high-class goods. Catalogue free by return—

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THE ALL-WEATHER HOPPER.

Pat. 224741. Capacity ½cwt. mash; convertible feed, chicks or hens; guaranteed weatherproof; 30s. Stamp. Photo. — Rhymes, S.P.B.A., Northway, Tewkesbury.

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Crates, Round and Square Exhibitions, Egg Baskets, etc. List free.—Fred Cole, Manufacturer, Willingham, Cambs.

APPLIANCES.

FOR SALE.

Reliable Brooders; 10s. each. — Webster, S.P.B.A., Regent Poultry Farm, Heyhouses, Ansdell, Lytham.

Tanned String Netting, waterproof, 1in. mesh, for enclosing poultry; 30 yards long, 1 yard wide; 3s. 30 by 2, 6s. Nets lined top and bottom, 30 yards x 2 yards; 8s. 6d. each. All carriage paid.—Coussens and Co., Net Works, Rye.

Two Hearson 240 Incubators, done four runs, perfect condition, £12 each. Installing mammoth. — Nichol, Wiltonbank, Hawick.

Four 250 Chick "Glevum" Blue Flame Hovers, almost new; £4 each; carriage paid.—Allan, The Jaw, Milngavie, near Glasgow.

For Sale, one 150-egg Triumph Incubator, in perfect order; fitted for heating by lamp and also automatic gas governor. Price £5.— Brig.-General Maconeby, Edenmore, Hook, Hants.

Seven Converted Radiant Hovers, without canopies; best offer accepted; carriage forward.—Maccombie, Felstead, Essex.

FOUR 220 TRIUMPH INCUBATORS.

Condition as new; complete with all spares; inspection invited. Price £8 10s. each, or £30 for the Four, f.o.r. Purchasing Mammoth.—F. D. Berridge, Holtside P.F., Rowledge. Farnham, Surrey.

FOX'S TRAP-NEST FRONTS.

Simple, durable, reliable; sample three, 6s.; 21s. dozen, carriage paid.—Fox, Hebron, Colnbrook, Bucks.

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FOR SALE.

Alfalfa Meal, beautiful quality, extra fine ground, from Colorado, 15s.; Nolak Pure Fish Meal (2½ per cent. oil, 57 per cent. albuminoids), 22s.; Meat and Bone Meal, 14s.—John Irwin, 147, Victoria Street, Belfast.

CARBURY LIMESTONE GRIT

is sharp and clean, 3s. 6d. per cwt. — Carbury and Co., Ltd., Longcliffe Works, Wirksworth, Derbyshire.

CRITICAL BUYERS

of poultry food realise that highest quality spells success. White Fish Meal, 2 per cent. Oil and 2 per cent. Salt only! Pure Sussex Ground Oats, finest procurable. Write for list and samples.—John Wright (Tun. Wells), Ltd., Tunbridge Wells.

MR. TOM NEWMAN

has given us permission to make up the Universal Laying Food to his formula provided the ingredients are of the finest quality, and price as follows: cwt., 22s. 6d.; 5 cwt., £5 7s. 6d.; 10 cwt., £10 10s.; ton, £20; carriage paid England and Wales. Bags free.

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REDUCED PRICES! GRIT.

Derbyshire Limestone Grit, 3s. cwt; 40s. per ton, f.o.r.—E. Thornhill, Great Longstone, Derbyshire.

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Fine Granulated Vegetable Charcoal for mixing in Dry or Wet Mash, 15s. 6d. per cwt., 8s. 6d. ½ cwt. carriage paid nearest station.—Clifford de Kusel, Otford, Kent.

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As advocated in this journal. Bone, Salt, and Oyster. Now known as "Calsa"; 7lbs., 2s.; 14s. cwt. Carriage or post paid. You need it this winter.

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Big breeder writes:—"We do know that if an affected birds gets your serum, it puts it right quicker than anything else we know of."

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The simplest, safest, quickest, cheapest cure on the market. No inoculating, no cutting, no squeezing of offensive growths or swellings. Write for my Practical Pamphlet for the practical man (1s. post free).

"THE DETECTION, CURE AND PREVENTION OF ROUP."

Tells you the very thing you want to know, and how to save yourself and your birds from ruin. Guaranteed testimonials. —Severn Storr (Dept C.), The Winnaway Poultry Farm, Harwell Steventon, Berks. (When writing mention "Eggs").

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"DIPTH" (NON-POISONOUS).

THE NEW & SURE CURE & PREVENTIVE for COLDS, ROUP, CANKER and GAPES

in Fowls, Turkeys, Pheasants and Pigeons, Dipth is a quick cure. A pint tin has cured 20 birds within a week. No handling of birds necessary, as Dipth is simply mixed with meal and fed as a wet mash. Prices in sealed tins: Pint, 3s.; Quart, 5s. 3d.; ½-Gallon, 9s.; Gallon, 16s.; 2 Gallons, 30s.; 4 Gallons, 55s.; carriage paid. From

JOHN SMART, S.P.B.A.,
"Bonnybrook," SUNBURY-ON-THAMES.

PUPILS.

Vacancies for Pupils on Poultry Farm. Exhibition and Utility. Live in bungalow. —G. W. Pritchard, Beals Barn, Cousley Wood, Wadhurst.

Miss Harrison Bell, Sisservernes Farm, Welwyn, Hertfordshire (London 25 miles). Thorough practical, theoretical Training on large Pedigree Poultry Farm, modern equipment, mammoth and small Incubators, capacity 7,000 eggs. Girls taught on business lines; Lectures, Examination, Certificates. Salaried posts found.

Pupils are received and thoroughly trained by Major and Mrs. Disney-Roebuck on their modern Pedigree Utility Breeding Farm, midst charming surroundings. Management on S.P.B.A. lines; 1,000 head; Mammoth incubator.—Hoo Meavy Poultry Farm, Yelverton, Devon.

PUPILS.

Vacancy, Pupils on profitable Poultry Farm. Thorough practical, theoretical training; incubator capacity 6,000. Resident lecturer, tuition, board residence, 25s. week. — Ekins, S.P.B.A., Grange P.F., Wellingborough.

Vacancy for Pupil, Utility Poultry Farm. Mammoth and small incubators; carpentry taught; no premium; boarding-lodging if desired. — Tanglin Poultry Farm, Fawkham, Kent.

Vacancy for Two Lady Pupils on Commercial Egg and Pedigree Poultry Farm, 2,500 head. 1,200 pullets trap-nested throughout the year. Established 14 years. Thorough tuition in all branches; live in.—Mrs. Knight, Manor House, Odstock, Salisbury.

Vacancy for Pupil on 130 acre farm, specialising in poultry; seven incubators, capacity 1,750; all branches taught by qualified man; lodgings available.—Stonestile Farm, Charing, Kent.

Major and Mrs. R. C. Everett, Castelmer, Kingston, Lewes, will shortly have vacancies for two male pupils. Live with family. Terms on application.

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FOR SALE.

Kentish Morella Cherries, one year, 6s. per dozen and upward, according to age. Raspberry Canes, 7s. per 100; carriage paid. —Cotton, Lenham Heath, Kent.

When you Require English or American Poultry Books, try Foster, 48, Blackwall Buildings, Whitechapel, London.

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Honey, Finest Quality, guaranteed Pure English; 7 lb. 11s. 6d., carriage paid. Sample 3d.—Madoc, Kingsley, Bordon, Hants.

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PUT FRUIT TREES IN YOUR RUNS.

Apples—Newton Wonder, Peasgood Nonsuch, Allington Rival. Pears—Buerre Pance, Conference Superfin, etc. 21s. doz.; 50 assorted, 75s., f.o.r. Money returned if not satisfied.—Turner, Rivermede, Hythe End Wraysbury, Bucks.

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Essex Farm, 18 acres; high position; large laying houses; accommodation, 1,400 birds; plant in new condition; good buildings; company's water.—Box 503, "Eggs," 94, Farncombe Street, London, S.E.16.

Poultry Farm of 4 acres with Freehold House, comprising three sitting, three bedrooms, bath (h. & c.), for Sale, owing to owner leaving England. Buildings include incubator room, workshop, stores, shedding for 1,000 head of poultry. All in excellent condition. The farm is situate in a high and healthy position in Hampshire, modern sanitation, excellent water supply. Possession immediately. For price and further particulars apply—Kent, 28, Woodcote Road, Caversham, Reading.

For Sale, Pedigree Breeder's Poultry Farm, near Norwich; Vacant Possession of Cottage (four rooms); Rent, £12 per annum. One acre of land. 110 White Leghorns and Light Sussex Pullets, 110 second year hens, 2 sows with litters, 18 Aylesbury ducks. Houses, incubators, brooders. Complete, £275. Apply--Alex. Baker, The Cottage, Tasburgh.

Seaside Freehold Poultry Farm, profitable concern. Six acres, some beach. Large poultry house to hold 400, food shed and garage, brooder house, 3-roomed Bungalow, asbestos and timber, £325. Stock at valuation, or would let 10s. weekly; ingoings £250, to include 300 W. Leghorn pullets (Parson's strain). Stamp. —Mrs. Harvey, Beach Poultry Farm, Winchelsea, Sussex.

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Help Required with Rearing, experience not essential; live with family; pay part board. — Palk's Utility Farm, Pawlett, Bridgwater.

Young Lady Required as Chicken-rearer (under supervision) on old-established Commercial Egg Farm, 2,500 head. Good home comforts and surroundings; live in; permanent post.—Box 562, "Eggs," 94, Farncombe Street, London, S.E.16.

A Poultryman, experienced in all branches, Wanted February 1st, single, aged about 30 preferred. Write—Stonestile Farm, Charing, Kent.

Poultry Girl (experienced) Wanted in North Hampshire. Separate bedroom, meals in kitchen. State wages and experience.—Box 561, "Eggs," 94, Farncombe Street, London, S.E.16.

Wanted, Poultry Maid, experienced hatching and rearing; furnished bungalow provided.—Mrs. Ogilvie, Smartswell, Mereworth, near Maidstone.

A Vacancy occurs on a large Poultry Farm in France for a well-educated young man to learn poultry farming. Only those who are keen, industrious and with first-class personal references need apply. Excellent prospects for the right man. — F. E. Fooks, Cleres, Seine Inferieure.

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Educated (New Poor) capable girl to take charge Poultry and Dairy work; good training and book-keeping essential. —Miss Chapman, Starling Castle, Bronygarth, Oswestry.

Wanted, Man to run small Pedigree Poultry Farm near Skipton, Yorks. State age, experience, wages required, and whether married or single. Write—Poultry, Post Office, Box 76, Bradford.

WANTED.

APPLIANCES.

Wanted, 600 Glevum Incubator, 1924 or 1923 model.—Maccombie, Felsted, Essex.

Second-hand Blue Flame Hovers, 250 chick size, in perfect working order; also Pioneer Hovers, 150 chick size. — Heslop Davies, Carregfelen, Portmadoc.

Wanted, Hearson 60-egg Incubator, or between sizes up to 100-egg size, must be in perfect order and cheap. Write—Steward, Harbolets, West Chillington, Pulborough, Sussex.

Two 120 size Hearson Incubators. Good condition absolutely essential. Price to include packing and freight to Hemel Hempstead.—Box 559, "Eggs," 94, Farncombe Street, London, S.E.16.

MISCELLANEOUS.

Wanted, Dog, safe with children and poultry, good guard. — Bantoft, "Roseferns," Westfield, Woking.

Wanted 60 R.I. Reds, 90 White Wyandottes Hens; Aylesbury Ducks and Drakes. —Box 553, "Eggs," 94, Farncombe Street, London, S.E.16.

Wanted, Wholesale Buyers of Chicks.—East Lancashire Colony, Gt. Barrow, Chester.

Light Sussex Hens, up to 50.—Price and particulars to Box 547, "Eggs," 94, Farncombe Street, London, S.E.16.

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Youth (19½) desires Post on Poultry Farm; two years' experience; keen worker; board, lodging and small wage; good references.—Box 550, "Eggs," 94, Farncombe Street, London, S.E.16.

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Young Lady, several years' experience Poultry Farming, requires Post. Excellent reference. Can drive car.—Box 557, "Eggs," 94, Farncombe Street, London, S.E.16.

Young Lady, just completed year's training, specially experienced fattening and rearing coup chickens, requires responsible position on Modern Poultry Farm.—Box 560, "Eggs," 94, Farncombe Street, London, S.E.16.

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NORTH TAWTON, DEVON.

Sale of Fawn and White Runner Ducks.

MAY and SON, HATHERLEIGH, DEVON,

Have received instructions from Mr. R. C. Letheren, to SELL by AUCTION, on JANUARY 8th, 1925, at 2 p.m., the following pens:—

PEN I.—Six Ducks and One Drake, Breeders of National Laying Test, Silver Medal, Birds. (Single Bird laid 281).

PEN II.—Two Ducks and One Drake. Won Silver Medal, Bentley, 1923-24. Test Score, 519.

PEN III.—Three Ducks (bred from Pen I.). Entered in National Laying Test, 1924-25.

PEN IV.—Four Ducks, Sisters to Pen III.

Also Trap-Nested Rhode Island Reds.

Sectional Poultry Houses and Equipment, etc.

Auctioneers will bid for Clients; so send your instructions.

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Male Students only accepted.

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F. F. POTTER,
Director of Education.

EDGWARE (Middlesex) AND DIS. P.S. 2nd ANNUAL SHOW, **THURSDAY, JANUARY 15th, 1925.** Under P.C. Rules. Judges: Major Tom Potter; A. Skinner, Esq. 24 Classes, including 12 Open Utility, 2Bantams and 10 Members. Poultry Club Cups and Medals. Open Classes: 20/- ,10/-, 5/-; Entry Fee, 3/6. Bantams, 10/-, 5/-, 2/-; Entry Fee, 2/-. Members: 5/-, 3/-, 2/-; Entry Fee, 1/6. Entries close January 3. Schedules from W. H. FISHER, Hon. Sec., 78, Roe Lane, Kingsbury, N.W.9.

* * *

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The 'Heaselands' Film

Will be shown at the following towns during the ensuing week.

1st to 3rd JANUARY, 1925:—

The Broadway Cinema, East Ham.
The Gainsboro', Sudbury, Suffolk.
The Capitol, Horsham.
Hill Top Picture House, West Bromwich.

5th to 7th JANUARY, 1925:—

The Picture House, Barnes, S.W.
The Hippodrome, Llanelly.
Workmen's Hall, Abergwynfi, Glam.

5th JANUARY ONLY:—

The Orcadian Agricultural Discussion Society, Kirkwall, N.B.

From the "Burton Daily Mail," August 21st, 1924.

POULTRY FILM AT THE PICTUREDROME.

A film of special interest to poultry fanciers is being screened at the Picturedrome this week-end. It is specially devoted to poultry breeding, and was taken on Mr. E. Bostock Smith's Poultry Farm in Sussex. On this huge farm over 10,000 birds are accommodated, and the film deals with the complete process of poultry farming from start to close. Quite apart from its instructive qualities, however, it is exceedingly interesting, and merits its inclusion with the splendid programme.

Under instructions from Capt. Middleton, who is leaving the neighbourhood.

"STAFFORD HOUSE," IFIELD, CRAWLEY.

Crawley Station two miles. On Motor Bus route.

IMPORTANT SALE
Of the Whole of the Live and Dead

POULTRY STOCK

comprising about

800 HEAD of PURE-BRED POULTRY, including **Rhode Island Red, Light Sussex, White Wyandotte, Leghorns, Croad Langshans.**

About 30 Excellent POULTRY HOUSES, Incubators, Coops, Wire Netting, Brooders, Offices and Huts, Corn Bins, and complete Appliances. MOTOR LORRY, Outside Effects, together with the

HOUSEHOLD FURNITURE

(Mostly by Maples), including BEDROOM SUITES, Wardrobes, Bedsteads, COTTAGE PIANOFORTE, SITTING ROOM SUITES, Chesterfields, Lounge Chairs, Gramophone, and numerous very useful effects, which

Messrs. C. F. TAYLOR & CO.

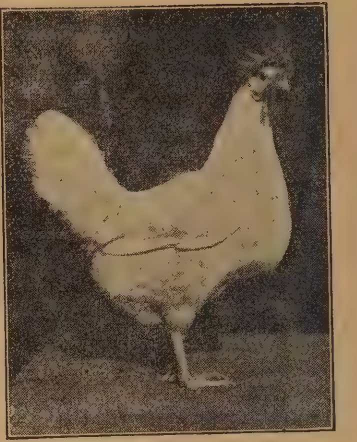
(A. Howard Clarke and A. Eveleigh Blake)

Will SELL by AUCTION on the Premises, on WEDNESDAY and THURSDAY, JANUARY 7th and 8th, at 11 o'clock each day.

Catalogues to admit to view day previous may be had at the Auctioneers' Offices:—

Crawley, Sussex, & Horley, Surrey.

White Leghorns Only



No. 119, Record: 680 in three years.
Dam, "Lady Bountiful II.," 687 in 3 years.

Our Strain has eleven years' trapping and pedigree work behind it.

1925 Illustrated List now ready.

Detailed Pedigree List on application.

THE MISSES RANSFORD,
Perseverance Poultry Farm.
PENSFORD, near BRISTOL.

"BARNEVELDERS."

UTILITY, EXHIBITION COMBINED.

Over 50 prizes won this season, including Cups, Specials, Awards of Merit, Firsts, Seconds at Utility and Exhibition Shows. Recent success, Olympia Club Show: 1st, Silver Cup, Utility Male; 1st, Silver Cup and Reserve, Utility Female; 3rd, Breeding Trio; 3rd, Exhibition Cock; 4th, Exhibition Hen. Bronze Medal, Harper-Adams; Laying Test (two pullets laid over 200 each, securing two certificates, 1,250 eggs laid in 48 weeks by seven pullets, only 16 second grade). All the winners reared on the place.

Start with a Good Breeding Pen. I can supply splendid Cockerels and 1923 hatched Pullets, over moult, in grand condition. Sittings Booked for January delivery. Particulars:—

MRS. MANWARING,
S.P.B.A., Barnevelder Club, Poultry Club,
"Plovers," Horsmonden, Kent.

LIGHT SUSSEX CHICKS.

For February delivery from trap-nested stock.

£5 5s. 0d., 100.

Prices for larger or smaller quantities on application.

W. P. HARMER,
"Little Hadlow" Poultry Farm,
HADLOW DOWN, SUSSEX.

CUSTOM HATCHING.

26/- per 1500; £8 per 1,000.

Chicks returned carriage paid.

REDUCTION ON REGULAR QUANTITIES.

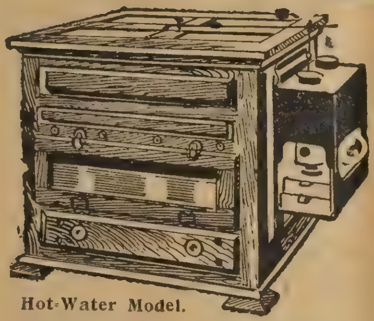
W. P. HARMER,
"Little Hadlow" Poultry Farm,
HADLOW DOWN, SUSSEX.

When Answering Advertisements, Please Mention "EGGS."

is half the battle—an old saying but very true—and it is particularly applicable to Poultry Raising. Resolve to make "a good start"

By Using PHIPPS 100% Efficient

POULTRY APPLIANCES



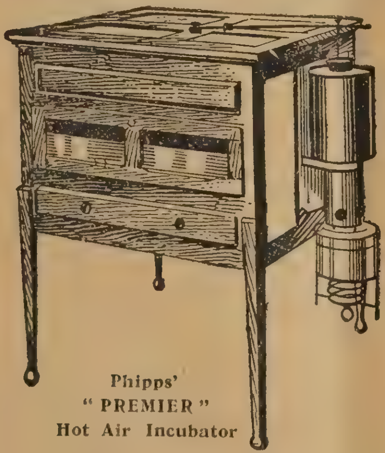
Hot-Water Model.

Phipps' "PERFECTION" Incubator.

Built right into the interior of the "PHIPPS'" Incubator is the true secret of its marvellous success—the real reason why it absolutely surpasses all others and why it hatches chicks far superior in bodily stamina. Every "PHIPPS'" Incubator is lined with special non-ferrous metal and embodies the Phipps-Atkinson Hygroscope.

40 Egg Capacity	......	£6 15 0
70 ,, ,,	......	£8 10 0
110 ,, ,,	......	£10 0 0
200 ,, ,,	......	£15 0 0

Can be fitted for Oil, Gas or Electricity



Phipps' "PREMIER" Hot Air Incubator

It is but the simple truth to state that this incubator stands positively in a class of its own—proved supreme the world over. It is, to make a comparison, the Rolls Royce of the Incubator Industry but at the "Ford" price.

70 Egg Capacity	......	£6 15 0
110-120 ,,	......	£7 15 0
160-170 ,,	......	£8 10 0
260-280 ,,	......	£11 10 0
400 ,,	......	£15 0 0

—and you will keep right ahead throughout the year, raising and rearing healthy, robust chicks, and increasing your business and profits.

Take the first step to a good start NOW—write for the PHIPPS' Illustrated Catalogue, which contains details of every Appliance you need for successful poultry raising—it is FREE and Post Free.

A. E. W. PHIPPS, MIDLAND WORKS
No. 4 Harborne, Birmingham.

PHIPPS' Appliances are obtainable on Easy Terms from J. G. Graves, Ltd., Sheffield; The Service Co., 292, High Holborn, W.C.; and The Walmer Manufacturing Co., 33, Winckley Square, Preston.

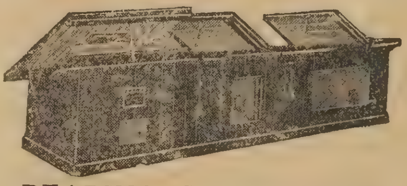
Carriage Paid in England and Wales.

Phipps' "CASS" Hover.

The Hover that rears robust, healthy chicks. Simple yet 100 per cent. efficient—and most economical to use. Proved by test to be the most successful indoor brooder produced.

100-150 Chick Size	... ...	£2 17 6
150-200 ,, ,,	... ...	£3 10 0

Write NOW for FREE Illustrated Catalogue and let "PHIPPS" start you right for successful poultry raising.



REARING THE CHICKS.

The Poultry Farmer's greatest problem—the stumbling block throughout the world is REARING CHICKS—and the only successful artificial rearing device produced is the

Phipps' "PERFECTION" Foster Mother

The whole Poultry Industry, from the great "breeders of thousands" to the "small tenant farmer," has acclaimed the "PERFECTION" to be supreme—the Foster Mother that completely solves the rearing problem. It positively rears two chicks where others rear one—and rears them to perfection, even in the worst periods of the year.

READ THIS LETTER:—

Moat Hall Poultry Farm
Ouseburn, York.

Dear Sir,

Will you please forward me three "Perfection" Foster Mothers, 150 chick capacity, cheque enclosed.

It may interest you to know that we do all our rearing with your "Perfection" Foster Mothers, and personally I have no wish to change my system. I find your "Perfection" Foster Mothers give infinitely better results than any brooder house system I have ever come across.

Yours truly, H. G. TUNSTILL.

AND—that is typical of thousands of letters received—and it is the reason why hundreds of "PERFECTION" Foster Mothers are NOW booked up for delivery. Place YOUR order NOW.

PRICES.

60 Chick Size	... ...	£6 6 0
100 ,, ,,	... ...	£7 7 0
150 ,, ,,	... ...	£8 10 0

Clinton—Wall.

INCUBATOR CHART

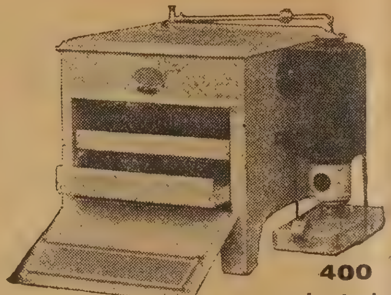
154 Heavy Breed. Saturday, November 12.
Due Wednesday, December 3.

150-Egg "Invincible Ironclad."

Date	Day	Inc.	Nur.	Room	Inc.	Nur.	Room
13	1	103	82	51	104	82	56
14	2	105	85	54	104	85	54
15	3	105	84	52	105	83	50
16	4	105	82	44	105	83	45
17	5	104	82	42	104½	82	43
18	6	104	84	33	106	84½	50
19	7	106	84	46	105½	84	53
20	8	105½	84	52	106	87	57
21	9	105½	86	52	105½	87	54
22	10	105½	86	54	105	87	56
23	11	105	86	56	105	88	58
24	12	105	85	50	104½	86	52
25	13	105	86	55	105	87	56
26	14	105	86	56	105	86	56
27	15	105	85	50	105	86	48
28	16	105½	84	42	105	86	52
29	17	105	84	52	105	88	55
30	18	105	84	54	105½	87	56
1	19	105½	86	56	105½	87	56
2	20	104¾	87	54	106	87	53
3	21	Chipping on 20th.					

Clear 18, Bk. Yolks 4; Weak Germs 12.

106 STRONG CHICKS HATCHED. **88** PER CENT. YOU WILL NOTE THE TEMP. OF MACHINE IS KEPT WELL UP. IF THE ROOM REG. 65 THE MACHINE WOULD RUN AT 104 DEGREES.



400 in stock

The "INVINCIBLE IRONCLAD."

Best known as the G.A.S.H. Hot-Air Incubator.

AS A RULE AN INCUBATOR CHART IS AN OBJECT LESSON, BUT WHY DO WE NOT SEE THEM PUBLISHED? FOR THE SIMPLE REASON MANY MAKERS DO NOT KEEP POULTRY, SO IT'S IMPOSSIBLE TO GIVE THE INFORMATION THAT I DO. I start incubating in October and take off one batch a week until end of December, when as a rule I run 12 machines for several months; the first hatches are really made for testing pens and machines. Up till now my hatches have given 80, 83½, 82, 88 and 87 per cent. from tested eggs. YOU HAVE MY RECORDS FAIR AND HONEST. THE CHICKS CAN BE SEEN UNDER MY WORLD RENOWNED HOVER. THIS MACHINE WAS THE FIRST EVER INTRODUCED HAVING TWO THERMOMETERS. You will notice the Chart gives temperatures of both nursery and egg tray.

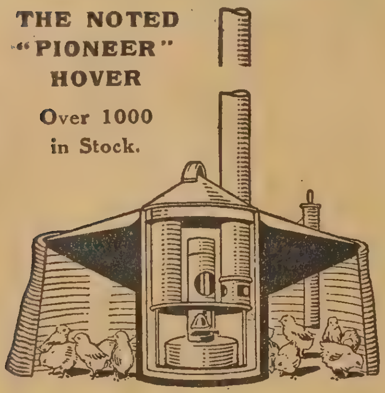
25 Eggs.	50 Eggs.	100 Eggs.	150 Eggs.	Carriage paid.	250 Eggs.	390 Eggs.	Carriage Paid but
£2 15s. 0d.	£3 12s. 6d.	£4 15s. 0d.	£5 10s. 0d.	and crates included.	£9 0s. 0d.	£12 10s. 0d.	crate returnable.

The World's Best is the

"PIONEER" Sanitary Hover

THE NOTED "PIONEER" HOVER

Over 1000 in Stock.



100 to 150 Chicks, £2 10s.; 3 for £7 7s.
50 to 70 Chicks, £2 4s.; 3 for £6 9s.
Carriage Paid.

The "PIONEER" is as near nature as it's possible to get them.

THE SMALL UNIT SYSTEM.

READY FOR DISPATCH.

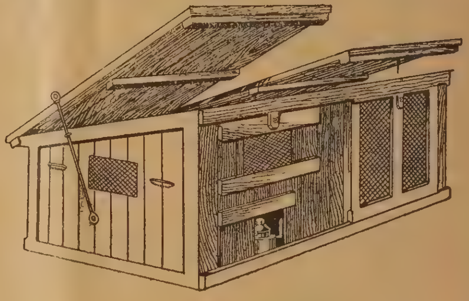
THE CHAMPION SYSTEM OF REARING EVER INTRODUCED.

FOR USING IN CONJUNCTION WITH THE PIONEER HOVER.

No. 1 Unit, 5ft. long, 3ft. wide, 3½ft. high, £3 7s. 6d. Lined 3-ply, £3 15s.
No. 2 Unit, 6ft. long, 4ft. wide, 4ft. high, £4 9s. 0d. Lined 3-ply, £4 18s.
No. 3 Unit, 7½ft. long, 5ft. wide, 4½ft. high, £5 15s. Lined 3-ply, £6 5s.
Carriage Paid.

The "Rising Sun"

OUTDOOR BROODER



One of the oldest outdoor brooders ever put on the market, and thousands are in daily use—fitted right up to date, felted roof and painted two coats of oil paint.

No. 1, 6½ft. long, 3ft. wide, for 100 day-old Chicks or less, £5 16s. 6d. each.

No. 2, 4½ft. x 2½ft., 50 Chicks, cresoted outside, £4 10s. 6d. each.

Reductions on two or more. Carriage Paid.

EVERY LETTER COMES UNDER MY PERSONAL NOTICE, AND ANY QUESTION CONCERNING POULTRY, INCUBATORS, BROODERS, etc., etc., GETS MY PROMPT ATTENTION. ORDERS of 6d. for Rings get the same attention as large orders.

EVERY ARTICLE IS OF FIRST RATE QUALITY AT MODERATE PRICES. TRIAL ORDER SOLICITED.

BEST PRICES GIVEN FOR HOUSES OF 100 TO 1,000 BIRD CAPACITY AND MEN SENT TO ERECT. FULL LIST POST FREE. EXPORTS MADE TO ALL PARTS OF THE WORLD. AGENTS IN SOUTH AFRICA, N.W. INDIA, BURMA, WEST INDIES, etc.

Mr. J. E. Draper, Audley Range, Blackburn, Sole Agent for Lancashire, Westmorland and Cumberland, holds large stock of Incubators & Hovers. Messrs. Graves, Sheffield, and The Service Furnishing Stores, 289-293, High Holborn, London, W.C.2, act as Agents on easy payment system.

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(Late Manager to Randolph Meech),
The South of England Appliance Works,

Special Discounts to Members of S.P.B.A.

RHODE ISLAND RED
WHITE LEGHORNS
BLACK MINORCAS

Some Fine Cockerels from my best pens now ready for mating.

JOHN MEEKINGS,
PEANS FARM, ROBERTSBRIDGE, SUSSEX.

LIGHT SUSSEX
BARRED PLYMOUTH ROCKS

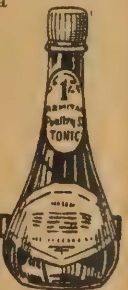
Note my new address, please! Send for Catalogue of Eggs and Chicks

New Life for Laying Stock

ARMITAGE'S CHICKEN & POULTRY TONIC

INFUSE new life, vim and vigour into your exhausted laying stock with a week's course of Armitage's Chicken & Poultry Tonic. This potent re-invigorator gives tone to the bird's whole system, stimulates the appetite, and induces the bird to eat copiously, thus rebuilding exhausted stamina and laying in raw materials for yet more eggs. Follow the example of thousands of knowing poultry-keepers, who safeguard themselves against loss of profits due to sickness in the runs, by always keeping handy a bottle of the original

ARMITAGES'
Chicken & Poultry
TONIC.



1/- HALF-PINT BOTTLE.

Sold by Corn Merchants and Grocers Everywhere.

Trial Bottle, post free, 1s. 6d., from

ARMITAGE BROS., LTD.,
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W. ROEBUCK STANIFORTH, M.S.P.B.A., F.N.U.P.S.,
Todwick Manor Poultry Farm, near Sheffield.
WHITE WYANDOTTES.
We guarantee to send out only eggs of 2 ozs.

Winner of numerous Diplomas and Certificates at the leading Laying Tests, also White Leghorns. I am now booking Eggs for Hatching and Day-Old Chicks. My catalogue gives full particulars of my methods, and views of my farm, on application. It will interest you.

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THE label B.W.N.M.A. has been a great blessing to everybody who has to buy wire netting. Before that label was used the buyer could not tell good wire netting from bad, but every roll that bears that label has the guarantee of a member of the British Wire Netting Manufacturers' Association behind it. The British Wire Netting Manufacturers' Association comprises a group of manufacturers that has made the wire netting that bears its brand the standard of quality throughout the world.

The third of a series of booklets on British Wire Netting is now published. Written by practical men, it tells of ways of using wire netting in the Home. Ask your Ironmonger for a copy.

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British Wire Netting is supplied by all Ironmongers
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ALSO
"Chicken Rearing"
BY
TOM NEWMAN, RUDGWICK, SUSSEX.

Price 6½d. Each, Post Free

There are many Dried Bloods offering for Pigs and Poultry, but only one
RENTOX.
Blood requires special and costly preparation if it is to be used as a food.
Full particulars on request.
MIDLAND CATTLE PRODUCTS, LTD.,
BORDESLEY STREET, BIRMINGHAM.

TRAP-NEST RECORD CARDS.
1 dozen, 1/3; 100 for 6/6; 250 for 14/6; 500 for 27/6.
TRAP-NEST BOOKS, 6/- and 12/6.
UTILIO POULTRY FARMERS' ACCOUNT BOOK, 3/6.
Specimen Rulings Free.
RIPPIN & BAKER, The Newarkes, Leicester.

GOLDEN'S HOVER (PAT.)

As used by myself for the last ten years.

The "Perfection" Mother Hen

THE PERFECT REARER OF CHICKS.

Price ... 58/- Carriage Paid.

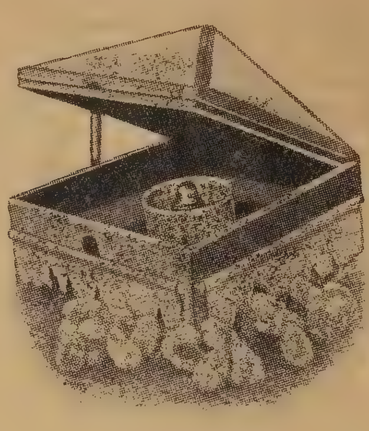
SPECIAL DISCOUNT FOR DELIVERY NOW.

Hover constructed of best seasoned wood and best galvanised steels. Special copper lamp, guaranteed seamless bottom, which is practically everlasting and cannot leak, fitted with patent guard and new smokeless burner under all conditions (recently introduced). Lamps supplied separately. 10s. 6d. each (to those requiring lamp only).

W. M. GOLDEN, Eaglesfield Poultry Farm,
LEIRE, LEICESTERSHIRE

AS EXHIBITED BY THE NATIONAL UTILITY POULTRY SOCIETY.

AS SUPPLIED HARPER-ADAMS' COLLEGE.



NOT A TIN BOX.

GUARANTEED DISPATCH IMMEDIATELY by passenger train on seven days' trial. Descriptive List and Price on application, with full details how Chickens are reared on the Eaglesfield Poultry Farm.

Please Read Unsolicited Testimonials.

"I like your Hovers better than any others. —WARWICK ROGERS, Market Drayton, Salop (Jan., 1924)."

"I might mention I have used your Hover for 3 seasons, and must say I have found it absolutely reliable in every way.—S. G. GREEN, 12, Charteris Terrace, East Ferry Road, Cubitts Town, London."

"In my opinion there is no Hover on the market to touch yours, we are now using four of them with excellent results.—HY. MAHLER, Ffrind, Talycafa."

"It is without a rival at the present time.—M. P. PROCTOR, Delamaine, Kirby Muxloe."

"The Hover you supplied proved a complete success. I placed 54 chicks in it ranging from 1 day to a week old, and not one ailed. They were all reared to maturity without a single loss. You have rightly named it the 'Perfection' Hover.—J. I. MORRIS, Glyn Road, Brynamman, Glam., S. Wales."

"I cannot speak too highly of these 'Perfection' Hovers, because I lost far fewer chicks with them than I did with reliable broody hens. For early rearing they are indispensable.—EDGAR DODDS, Chilvers Coton Vicarage, Nuneaton."

"Kindly sent me another of your rightly-named 'Perfection' Hovers. It is the first time in all my 20 years' poultry experience I have taken chickens away from hens, knowing they were safer in your 'Perfection' Hover.—JOHN J. ASHTON, 521, St. John's Terrace, Baslenden, near Accrington."

"I am getting excellent results with your Hovers. It is the ONLY time I have seen NATURE beaten." — S. A. MARTIN, Old Basing, Basingstoke."

"Hover to hand. I am very pleased with it. It is the best-made article for the money I have seen since pre-war days.—W. GECK, Battle, Sussex."

We call special attention to the risk of rearing chicks together in large numbers.

This MAY SAVE labour, BUT does it SAVE the CHICKS?

LABOUR SAVING IS NECESSARY, BUT NOT at the expense of results.

Have you had big losses and disappointing results through adopting a bad though plausible system? If so try my system of rearing, and save your stock.

Also SPECIAL BROODING AND REARING HOUSE on wheels for use in connection with Hover. This dispenses with intermediate or cold brooder, and can be used for rearing pullets to laying age. PRICE, £3 5s. f.o.r.

RHODE ISLAND REDS. WHITE LEGHORNS.

WHITE WYANDOTTES

LIGHT SUSSEX.

Winners 1st Prize and Gold Medal and Cup Lancashire International Laying Trials, 1922-23 (large breeders), beating all breeds, including all White Leghorns and White Wyandottes. Money value £19 0s. 11½d. for 10 birds.

NOTE these remarkable facts. Not a single bird broody during the trials. Total number of Eggs, 2,223. Total weight, 4,722 oz.

This is the best official record ever made in this country for a pen of 10 birds.

LAYING CHART LANCASHIRE GOLD MEDAL WINNING PEN, OCTOBER 16th, 1922—16th SEPTEMBER, 1923—48 WEEKS.

	Oct. 16 to Nov. 12.	Nov. 13 to Dec. 10.	Dec. 11 to Jan. 7.	Jan. 8 to Feb. 4.	Feb. 5 to Mch. 4.	Mch. 5 to Apl. 1.	Apl. 2 to Apl. 29	Apl. 30 to May 27	May. 28 to June 24	June 25 to July 22	July 23 to Aug. 19	Aug. 20 to Sept 16	Total Eggs
441	20	7	2	19	18	20	23	26	24	25	25	21	230
442	13	18	18	16	19	21	24	25	22	23	23	21	243
443	—	M	4	19	22	24	26	25	22	23	20	18	203
444	24	19	17	17	20	24	24	23	20	19	19	19	245
445	6	23	20	19	21	23	24	26	21	23	21	M2	229
446	15	17	17	16	18	17	17	20	15	15	18	M13	198
447	1	5	19	18	14	14	21	22	21	21	21	18	195
448	17	21	21	5	M	14	25	23	22	21	22	20	211
449	20	18	18	15	4	22	20	23	21	22	23	21	227
450	20	21	20	22	22	23	23	19	21	16	16	15	238
Unrec'd	2	—	2	—	—	—	—	—	—	—	—	—	4

Total Eggs 2,223

Magnificent Selection of 200 **WHITE LEGHORN COCKERELS**, from high record hens, all individually bred, from 21/-, 2 and 3 gns. on approval.

First for number of eggs in Championship Section at the National Laying Trials, Bentley, with an average of 217 eggs per bird for 10 birds; this was the highest average for the whole National Trials, nearly 1,500 birds competing, and contained three hens laying 250 eggs and over; one bird, Bentley Queen, laid 253 eggs in 12 lunar months, 1920-21.

Magnificent Selection Early Pullets and Cockerels. Prices: 21/-, 30/-, 2 and 3 gns., etc. I make a speciality of small, select foundation breeding pens, carefully mated for those starting and desirous of building up a high-grade flock.

EGGS for hatching, Special Settings, 12/6. 15/-, 21/-, etc. Lots for incubation £4 10/- and £6 per 100. Special prices for a number for commercial egg farmers.

CHICKS booked for January delivery onwards.

W. M. GOLDEN, Eaglesfield Poultry Farm, Leire, Lutterworth, Leics.

JOHN A. BETTS,
HAMPSTEAD NORRIS, NEWBURY.

Offers

2,000 PULLETS, COCKERELS and COCKS for breeding pens from his famous pedigree Utility Strains, all bred and kept on free range, giving hardness, vigour and great laying capacity, 1,500 stock birds sold last season giving great satisfaction.

All Birds on Approval.

Breeds kept: LIGHT SUSSEX, RHODE ISLANDS, WYANDOTTES, BUFF AND WHITE ORPINGTONS, BUFF AND BARRED ROCKS, LANGSHANS, BLACK BROWN AND WHITE LEGHORNS, MINORCAS, HOUDANS, CAMPINES and ANCONAS.

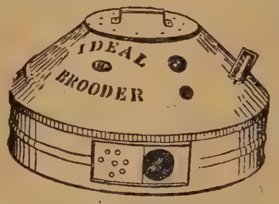
Ducks and Drakes for Sale in AYLESBURYS, K.-C.'s RUNNERS and ORPINGTONS.

PRICES from 8/- to 20/-.

PURE and CROSS-BRED EGGS, 7/- Dozen, 27/6, 50; 50/-, 100.

Send for Price List and Write Requirements, all answered by return.

A few Mis-Marked Ducks cheap for sale.



Porters' "IDEAL" Brooder.

30/-

Carr. Paid.

Fitted with hot-air chamber, ventilator, thermometer, lamp with improved chimneyless burner and patent smokeless wick, oil container with safety air shaft, oil filled cap with vent, moisture tray and wire safety guard. Full working instructions sent

Send for Poultry Appliance Lists.

S. E. PORTER, LTD., Makers, WHITCHURCH, SALOP.

To Ensure Prompt Attention FROM ADVERTISERS YOU ARE REQUESTED TO Mention "EGGS."

WIRE NETTING PATENT DEAD FLAT

BEST ENGLISH. Best and highly galvanised, every roll warranted 50yds., 6ft. 2in. All widths and gauges guaranteed. Beware of inferior wires.

Mesh.	1ft.	2ft.	3ft.	4ft.	5ft.	6ft.	G'ge.
3in.	3/9	6/9	9/4	12/5	15/6	18/8	19
2in.	5/2	9/6	12/10	17/1	21/5	25/8	19
1in.	8/6	15/5	21/11	29/3	36/6	43/10	20

Carriage Paid on £6 5s. 0d. orders.

OAK STAKES LAST A LIFETIME

Lengths, 4ft. 6in. to 8ft. ,2¾ x 1½in. to 3 x 1½in. square, sawn straight, ready pointed, from 7/6 per dozen. Special Low Prices for truck loads or quantities. Also Oak Poultry Gates, 8/6 each.

Poultry Houses. All Poultry Appliances.

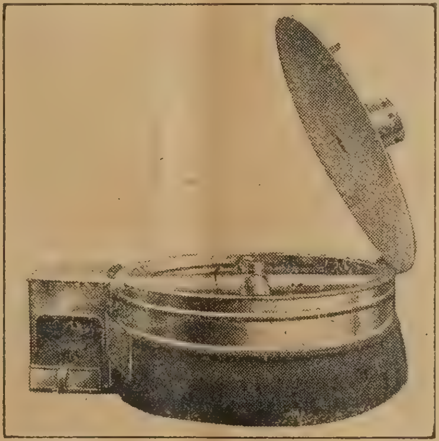
W. M. GOLDEN,
Patent Appliance Works, LEIRE, RUGBY.

The Super-Hover par excellence

Now that the Hover System of rearing is practically recognised by the majority of Poultry Farmers, naturally they are looking for the best appliances. Our "SUPER-HOVER," as illustration, is a machine which eliminates trouble and expense.

Mortality and weakness occurs with every hatch, and if this occurs in your present hover can you remove or inspect them without removing the hover? With the "Super-Hover" you simply open the cover and you have full view of the interior. After inspection you close the cover, the heat returning almost immediately.

Heated three ways.



Simplicity itself.

SUMMARY OF THE "SUPER-HOVER."

Fume-proof. Fire-proof. Floor space, free from obstruction. **Hollow Body, Special Lid, Hot-air Tubes,** form the combination of heating. **Hinged Lid** for viewing the inmates. **Observation Window** in Lamp-box for viewing lamp. **Heated by Oil or Gas** with minimum consumption. **Protector Guard** for keeping the young chicks from straying. **Materials** of the **Best Quality** only used.

Further particulars gladly furnished on receipt of a postcard.

PRICES.

200 Chick, with Protector Guard	£4 17 6	200 Chick, without Guard ...	£4 5 0
100 ,, ,, ,,	£2 17 6	100 ,, ,, ,, ...	£2 7 6
60 ,, ,, ,,	£2 10 0	60 ,, ,, ,, ...	£2 0 0

Crates: 5/- for 100 chick size; 4/- for 60 chick size, which is returnable and cash refunded if returned by "Goods," carriage paid. Sent at customer's risk if crate is not ordered.

Telephone: Woolwich 580. **Carriage Paid.** **Cash with order.**

Drew, Erwood & Co., Herbert Road, LONDON, S.E. 18

"Poultry Foods and Feeding," *also* **"Chicken Rearing."**

By TOM NEWMAN, Rudgwick, Sussex.

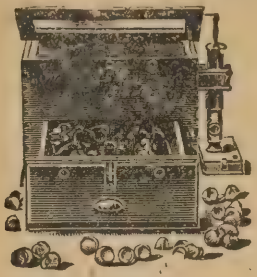
Price 6½d. each, Post Free.

Over 50 Gold and Silver Medals awarded.

Tamlin's Incubator

Fitted with Patent Copper Tank, Patent Insulated Capsule Regulator.

THE PROVED CHAMPION INCUBATOR OF THE WORLD.



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If with our Patent Self-Supply Lamp, which requires no attention, the whole time of hatching, price extra.

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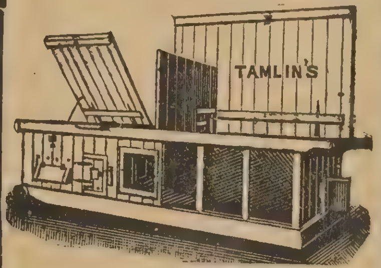

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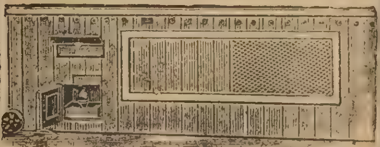

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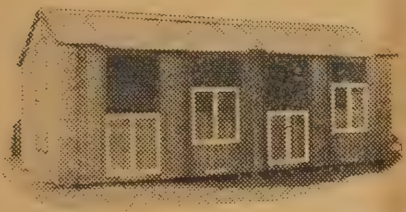

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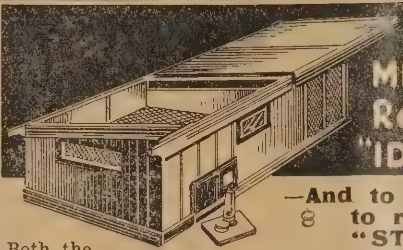

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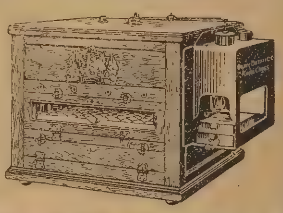

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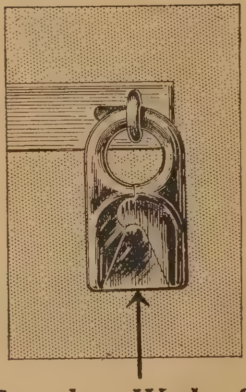

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Five Ducks Lay Fifteen Hundred and Twenty-Two Eggs in a Year. Is this a World Record?

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No.	Started Laying.	No. of eggs in 366 days.
1.	6th Nov., 1923,	294.
2.	20th Oct., 1923,	302.
3.	18th Nov., 1923,	292.
4.	6th Nov., 1923,	353.
5.	19th Nov., 1923,	281.

Another Khaki-Campbell Lays Three Hundred and Fifty-Two Eggs in a Year.

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Six R. I. Reds Lay Fourteen Hundred and Sixty-Six Eggs in a Year.

A. J. Bell, Esq., Long Wick, Princes Risborough, Bucks, writes:—" The following gives the performance of the pen of the six Reds I had from you last year. Their egg record from Nov. 7th (the day they arrived) up to to-day, Nov. 6th, 1923, is:—From Nov. 7th, 1922, 72; Dec., 119; Jan., 1923, 115; Feb., 125; March, 141; April, 143; May, 153; June, 138; July, 114; Aug., 129; Sept., 111; Oct., 98; to Nov. 6th, 1923, 8. Total, 1,466; average per bird, 244.3. All except about half a dozen eggs in Nov., 1922, are over 2 ozs. Fertility was about 95 per cent., and the progeny all fine in colour, and from their early performances look like making finer layers."

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"Chicks arrived safe, very satisfied." G. L.

"The 12 R.I.R. chicks arrived safe, and am very satisfied." A. D. B.

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"Hens, which arrived this morning, in good condition, and with which Mr. B. is very pleased." W. A. S.

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EGGS,

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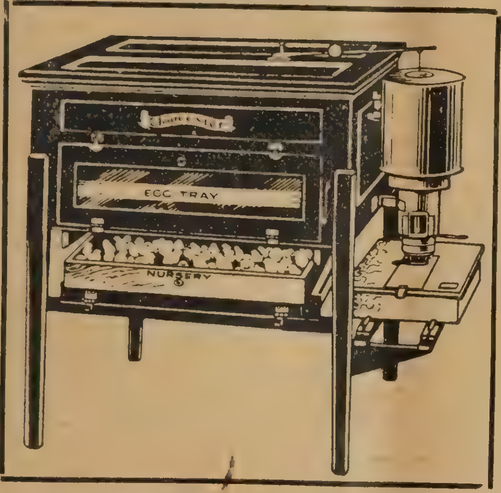

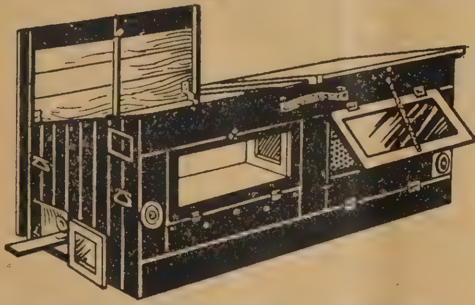

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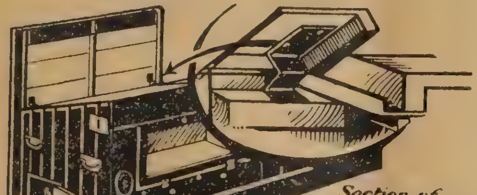

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Nurseries and Brooders are Carriage Paid. Crates Free.
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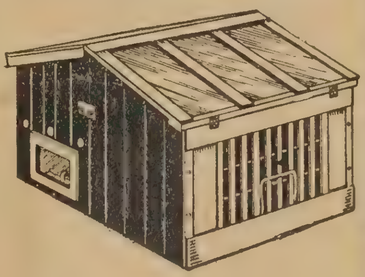

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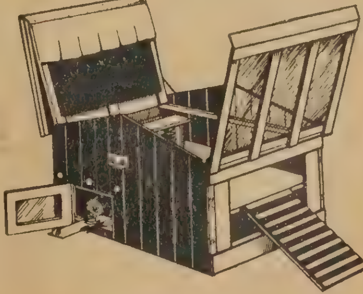

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All Grades, same price, 98.65 p.c. Carbonate of Lime.

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A hard sharp grit, making digestion perfect, and supplying poultry with the essential Mineral Foods necessary to the well-being and high vitality required to produce the highest type of egg-producing machine of to-day. "The Super Hen" so much sought after.

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Sole Manufacturers and Suppliers, Wholesale and Retail,

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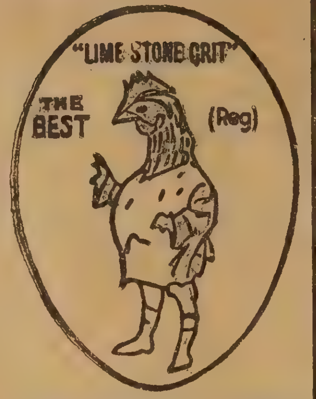

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THE IDEAL GRIT AT LAST.

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Its Use Renders Purchase of Expensive Oyster, Cockle and other Shell Unnecessary.

Selected as the ONLY GRIT to be fed to Birds at the current

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PRICES:—

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Poultry or Chick Size, Leckhampton Grit: 5s. 6d. per cwt.; £2 10s 0d. per ½ ton; £4 4s. 0d. per ton.

Quarried and Prepared Solely by
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1 2-Bushel Sack, containing about 28lb., 3/-; 2, 5/9; 3, 8/-; 5, 13/-; 2 cwt. Bales, canvas covered, 13/-.

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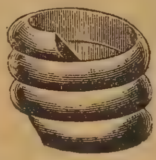

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Trap-Nested R.I.R. and Brown Leghorns, also White Silkies. Few February R.I.R. Cockerels for sale. Three only Brown Leghorn Cockerels (April).

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White Wyandottes.—1st Prize (£500), "Daily Mail" Test, 1921-22. 1st, all Heavy Birds, "Daily Mail" Test, 1921-23. 4th, Northern Test, 1920-21.

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Anconas.—1st Harper-Adams' Test, 1922-23; 3rd Harper-Adams Test, 1919-20; 3rd National Test, 1918-19.

Stock Cockerels from One Guinea.

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Sussex Ground Oats	16	6
Maize Gluten Feed	13	3
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B. J. B. Laying Mash	15	0
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Broad Bran	11	3
Clipped Oats	15	0
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F.o.r. Thatcham. Cash with order.

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SUPREME VALUE. (S.P.B.A. Only)

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F.o.r. Liverpool. Direct or through your Merchant.

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WHITE WYANDOTTES

Early Hatched Chicks

BOTH BREEDS HATCHING JANUARY 1st and ONWARDS,
From 15/- Dozen.
SITTINGS NOW READY. PRICES FROM 7/6 DOZEN.

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BREEDERS of PEDIGREE POULTRY ASHEY, I.O.W.

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30 POULTRY HOUSES, all in sections to bolt together. 8ft. long, 4ft. wide, 4ft. high. Made of best ⅝in. P.T. and G. Matching. First-class design. **35s.** each. Cannot be repeated.

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LISTS FREE.

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Pedigree Stock Cockerels

White Wyandottes

(Tom Barron's Strain).

CLASS A.—From hens with records of 225 to 249 large eggs, sired by cockerel from a 313 2½oz.-egg dam. This stock has given a negative test for B.W.D. **Two to Three Guineas.**

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Padman's Strain).

From hens with full records of 220 to 248 large eggs. Sire's dam 250—2¼oz. eggs.

One to Two Guineas.

All Strong, Vigorous Healthy Birds sent on full approval.

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Chicks „ **16/-** „

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"PLANOK" FIRELESS BROODERS can, with the exception of the No. 6 (which is for use in a Brooder House only), be used out of doors at any season, and in any weather. No worry with lamps, perfect ventilation is ensured and no draughts. They are extremely simple to work. Made from first-class materials only and in four sizes. The No. 1 holds 15 chicks; No. 2, 40; No. 3, 80; and No. 6, 320, from hatching up to six weeks.

PRICES:	Hover only.	Complete with Scratching Shed
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Sample Box	1/-	
1 doz. Boxes	6/-	
3 " "	5/4	per doz.
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12 " "	4/2	" "

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Made to stand hard wear. Ends and sides dovetailed. Hinged lids

Leather board fittings and felt between layers. Battens or handles for lifting. Boxes varnished.

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New Special 30 Doz.	13/3	12/6	11/9

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Gold Medal (National) White Wyandottes
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We can now offer a limited number of excellent breeding pens in both breeds, also a limited number of 1924 pullets. Individually bred Cockerels a speciality. Price List and further particulars on application.

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All Stock bred on Own 300 Acre Farm.

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NOVEMBER 15th to DECEMBER 12th.	Five Pullets.							Total.
4 days' Eggs ...	11 ...	13 ...	14 ...	12 ...	14 ...	13 ...	13 ...	90
4 days' weight	22 ozs.	26 ozs.	28 ozs.	24 ozs.	28½ ozs.	26 ozs.	26½ ozs.	181 ozs

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Specially prepared by our Analytical Chemists to supply Vitamines, Proteins and Phosphates of Lime in the Correct Proportion. To secure a Balanced Ration mix 10 to 15 per cent. in the usual Feed.

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300 Birds	—"Pure Unextracted"	30%
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all same age and parentage.

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PULLETS & COCKERELS from 15s.
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ROUGHTON, via NORWICH.

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BUFF ORPINGTONS, LIGHT and RED SUSSEX, and WHITE RUNNER DUCKS.
Buffs at Harper-Adams' Trials unbeaten 3 consecutive years by any other Orpingtons.
Sussex records include 315, 301, 285, 278 per bird.

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EGGS, from 5s. per doz.
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Double-Laced, Partridge, Blacks.
PULLETS and BREEDING COCKERELS.
Price List on Application.
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Leghorns (White, Black or Brown),	Light Sussex,
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PULLETS AND COCKERELS
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WHITE WYANDOTTES.
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Harper Adams' Certificates. W. Leghorns.
Tied for 1st place Section II. Tottenham Laying Test, 1923; 5th place, 5th month, Harper Adams', 1924; 12th Tottenham, 1924.
Pullets and Cockerels for Sale. Both Breeds
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A few still available.
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LIGHT SUSSEX,
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All Stock Trap-nested.
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Early Hatched Stock Birds in Both Breeds from 15s. to 25s. Approval.
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HATCHING EGGS and DAY-OLD CHICKS.
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White Leghorns.	Light Sussex.
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Pedigree Trap-Nested Stock.—Rhode Island Reds, Crowley-Boucher, Gold Medal Strain. Eggs now being booked, 6s. dozen: 40s., 100. 90 per cent. guaranteed. Trap-nested Two and Three-year-old Hens. **White Leghorns,** T. Barron-Padman. Eggs, 40s. 100, January to March; April and May, 30s., 100. 90 per cent. guaranteed. Trap-nested eggs. Particulars on application. Original Testimonials of Hatchability and Fertility can be seen. Inspection Invited. 1,200 Laying Stock. Pupils taken.

White Leghorns.

EGGS AND CHICKS,
From Our Noted Laying.
Strain now being booked.
EGGS, 6s. per dozen.
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Then get them from

J. H. McINNES SKINNER (M.S.P.B.A.),
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SPECIAL PENS. Hens, records 220-270, 2¼-2½oz. eggs, x tested cock from 261 2¼oz. dam. CHICKS, 42/-; EGGS, 21/- per dozen.

STANDARD PENS. Hens, records 180-220, 2¼-2½oz. eggs, x Cockerels, from 259-274 2¼oz. egg dams, x Cockerel, from 291 2¼oz. dam. CHICKS, 25/-; EGGS, 12/6 dozen.

PULLET PENS. Thoroughly mature Pullets, with high winter records of large eggs, x Cockerels from my best breeders. CHICKS, 18/6; EGGS, 8/6 per dozen.

All Birds Fully Trap-nested. Entirely under my Personal Supervision. Large Egg Factor Predominates. Particulars by Return.

Satisfaction Absolutely Certain.

Chicks Ready Weekly from Jan. 22nd.

"L2" Calling the British Isles.

The following will be ready for Broadcasting in 1925 from Trap-Nested Stock of RHODE ISLAND REDS and LIGHT SUSSEX Direct from G. B. Metcalfe (Special Pen), W. M. Golden (Specially Selected), Eden Rothschild, and Dr. Phillips.

Sittings from 8/6 to 21/-; £3 per 100. (80 Per cent. Fertility Guaranteed).

DAY-OLDS from 18/- to 42/- per dozen; £6 per 100.

Three Month Old Pullets, 6/- each.

Specially Selected Pullets, Four Months old, 15/- each.

Satisfaction Guaranteed.

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I am Now Booking Orders for

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Eggs, 7s. 6d. doz.; Chicks, 15s. 0d. doz.

Write for particulars before sending elsewhere.

DENYS J. HARMES,
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White Wyandottes
White Leghorns
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Khaki-Campbell
Buff Orpington
White and Fawn & White
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Sittings
from 7/6 per doz.

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from 21/- per doz.

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WRITE TO

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Everything to do with Ducks.

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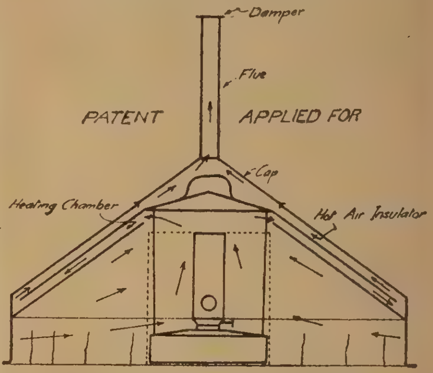
GIVE CHICKS FRESH AIR

Control that Fresh Air

The INDUCTAIR Hover will do this for you.



Arrows Indicate Flow of Air Through Hover.

The Hover is of the Circular Curtained Type, with Central Lamp, which lifts out, along with middle portion of Baffle, after Cap and Flue are taken off.

The Principle of this Invention lies in Inducing Air to pass at a Controllable Rate through the Brooding Chamber. To do this a Flue, with Regulating Damper, draws air through the system. The Air is taken from the Brooding Chamber at the highest point, that is, where foul gases begin to accumulate. Thus the Brooding Chamber is kept free from these foul gases and

FRESH AIR IS A POSITIVE FEATURE.

By gradually opening the damper, more air is pulled through the Hover, and consequently the temperature is proportionately reduced. Thus chicks can be steadily cooled down by giving them more and more air instead of cutting down the light, and maintaining that **RANK ATMOSPHERE common to old-fashioned types.**

SPECIFICATION.—The Hover is made of galvanised sheet iron, all knocked-up fireproof joints. A large oil vessel of tinned iron is provided. The Burner is of the tip-over type with chimney. A Thermometer pocket allows it to be read outside the curtain. The Hover is sent out complete, with Curtain, Thermometer, Lamp Guard, Draught Guards (sufficient to totally enclose hover, first day), in free crate, and is carriage paid.

CAPACITY:—

	Diameter.	Working Area of Brooding Chamber.	Working Capacity.
Large Size	**34 in.**	**825 sq. in.**	**150-200**
Medium Size	**29 in.**	**580 sq. in.**	**100-150**
Small Size	**21 in.**	**315 sq. in.**	**50-70**

PRICES: **Large, 55s.; Medium, 50s.; Small, 40s.**

TERMS STRICTLY CASH.

READ THIS GUARANTEE.

This Hover is sold with the Guarantee that it will furnish **PRACTICAL PROOF** of its capability to fulfil all its claims to Ventilation. Any person who, on trial, is unconvinced, may return Hover to me at my expense, and money will be refunded.

I have all sizes heated up for demonstration, and anyone interested will be welcomed. Write for Pamphlet.

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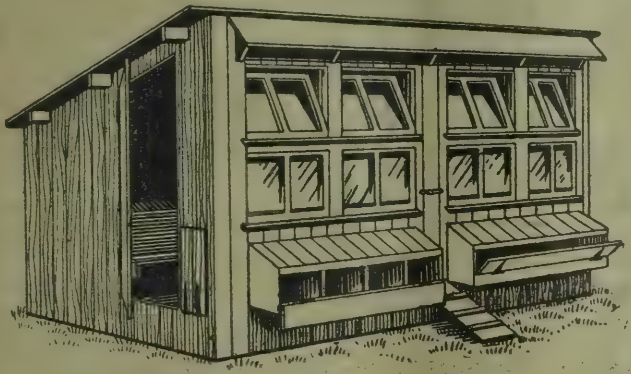

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This finely constructed Laying House is made of the finest quality ¾-in. boards throughout and is fitted with ¼-in plate glass windows, outside nest boxes, perches, dropping boards, fowl entrance, etc. It is entirely draught and weather proof. Fullest particulars and specification will gladly be sent on application.

Made in nine standard sizes from 8ft. by 6ft. by 7ft. at £10 15 0 to 120ft. by 10ft. by 7ft. at £139 0 0

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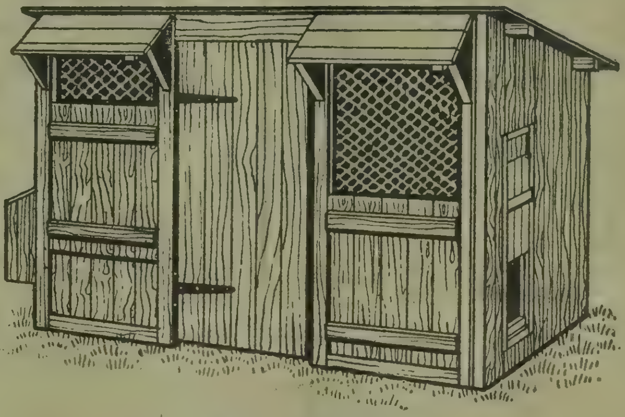
Our average daily output of Poultry Houses alone is well over 40, which enables us to offer our buildings at 25% below other makers' prices. The "Rose" and "Poppy" Houses are always in stock and can therefore be supplied in 24 hours.



THE ROSE.

A very popular type of semi-intensive house made in ⅝in. planed, tongued, grooved and V jointed red boards on a strong framework. The roof is of ½-in. planed, tongued and grooved boards covered with thick PLUVEX roofing felt.

Two up-and-down shutters are fitted complete with chains. Door is on tee hinges and fitted with lock. Supplied complete in every detail including perch, bolts and nuts.

Size, 6ft. long by 4ft. wide by 4ft. high ... price, £2 5 0
Size, 7ft long by 4ft. 6ins. wide by 5ft. high ... " £2 18 0
Outside nest box, 6/6 extra.

Carriage Paid in England and Wales.

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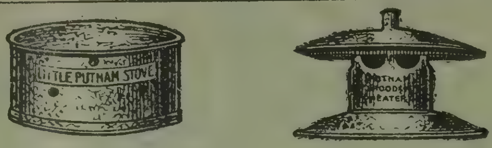

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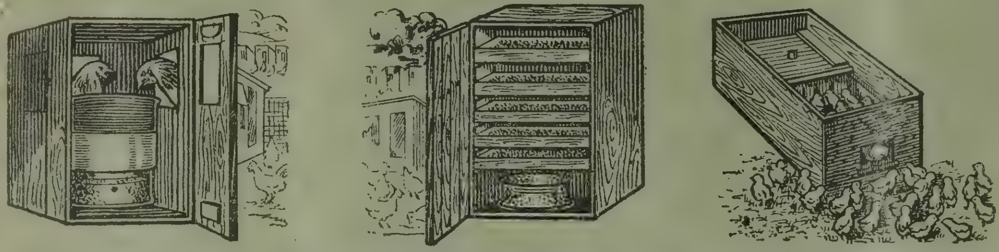
The Little Putnam Stove holds three pints of oil and burns a month without attention.

The Putnam Brooder Heater holds a quart of oil and burns ten days without attention.



NO OTHER BURNER IN THE WORLD WILL DO IT.

At the top are shown the LITTLE PUTNAM STOVE and the PUTNAM BROODER HEATER.

On the extreme left the STOVE is shown in use in the WATER PROTECTOR; this keeps the water at just the tonic temperature best relished by the hens. In the centre the STOVE is shown in use in the OAT SPROUTER. It is impossible to get so high a percentage of fertility from January and February eggs with any other form of green food. And last of all, but by no means least in importance, is shown the PUTNAM BROODER HEATER in use in a PUTNAM HOME-MADE BROODER, and this is THE GREAT SAVER OF CHICKS.

My CATALOGUE, which includes "POULTRY HELPS by PUTNAM," together with Plans for making the Putnam Home-made Brooder, Oat Sprouter and Water Protecter. will be sent on receipt of Three-pence to cover mailing expenses.

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THE IDEAL ANIMAL PRODUCTS OF SUPERIOR AND GUARANTEED QUALITY.

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Heydown, Heathfield, Sussex.
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The Denton Manufacturing Co., Newhaven, Sussex.

Sirs,—Would you kindly forward, as soon as possible, one ton of Meat and Bone Meal and half-ton Marrow Bone Meal.

You will doubtless be interested to know that we are now using the former for the whole of our 5,000 laying stock in place of Fish Meal.

Your Marrow Bone Meal we find excellent for inclusion in our rearing and growing mashes; in fact, the "DENTO" products have entirely superseded Fish Meal at "Heydown" in all the mashes; our results are thereby improved, in addition to effecting a considerable financial saving.

Should you be in our neighbourhood, we should be delighted to show you round our 90-acre farm, and feel sure that you would be particularly interested in our 11,000 chicks of various ages, which have all had a proportion of your meals, in place of Fish Meal, from the seventh day.

Yours faithfully, p.p. John H. Dowden and Son,
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